DOCUMENT RESUME

ED 057 021 24 TE 002 621

AUTHOR Sullivan, Richard E.
TITLE A Comparison of Certain Relationships among Selected Phonological Differences and Spelling Deviations for a Group of Negro and a Group of White Second Grade Children. Final Report.
INSTITUTION Texas Univ., Austin.
SPONS AGENCY Office of Education (DHEW), Washington, D.C. Bureau of Research.
BUREAU NO BR-1-F-038
PUB DATE Aug 71
CONTRACT OEC-6-71-0485
NOTE 156p.

EDRS PRICE MF-$0.65 HC-$6.58
DESCRIPTORS Caucasian Students; *Comparative Analysis; *Grade 2; *Language Research; Negro Students; Nonstandard Dialects; *Oral Expression; *Phonology; *Spelling; Test Construction
IDENTIFIERS Gloria and David Oral English Test

ABSTRACT

This study compares oral language production with the written realization of this production for a group of white and a group of Negro second graders attending public schools in Austin and San Antonio, Texas, respectively. Oral language production was assessed using the Gloria and David Oral English test, an individually administered audiovisual repetition task. Children were selected from all second grade classrooms in five participating schools. The spelling test consisted of 15 words selected from the phonological assessment according to the criteria of (1) a total number of production differences of 10% or more for all subjects in both groups who attempted the word and (2) the word contained a feature previously published research indicated as being pronounced with a high frequency of divergence for groups of Negro and white residents of the region. Conclusions include: (1) The white children were better able to produce the dialect of English presented by the model than were the Negro children; (2) Pronunciation differences which existed for the Negro pupils included those that existed for the white pupils; (3) A number of Negro pupils had the production capability for many dialect features of standard English; (4) The overall spelling performance of the white pupils was more rational than that of the Negro pupils. (Author/CK)

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ED057021

Final Report

Project No. 1F038
Grant No. OEC-6-71-0485

A COMPARISON OF CERTAIN RELATIONSHIPS AMONG SELECTED PHONOLOGICAL DIFFERENCES AND SPELLING DEVIATIONS FOR A GROUP OF NEGRO AND A GROUP OF WHITE SECOND GRADE CHILDREN

Richard E. Sullivan
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August 1971

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to those who helped along the way

P R E F A C E

This study by Richard E. Sullivan explores new territory involving the effect of linguistic differences in oral language on other areas of the language arts, in this case, spelling. With the rich data base made available through Mr. Sullivan's efforts, suggested instructional prescriptions may now be tested in order to provide individual pupils with linguistic alternatives which could result in the improvement of spelling correctness. Replication of the study in modified form, e.g., the development of multiple spelling tests, each based upon an oral linguistic variation that makes a difference in correct spelling, appears to be one next step.

Thomas D. Horn

July 22, 1971

A C K N O W L E D G M E N T S

The author wishes to express his appreciation to the following members of The University of Texas at Austin faculty: Dr. Thomas D. Horn, supervisor of this study, Dr. O. L. Davis, Jr., Dr. Frederick Williams, Dr. L. Jean York, and Dr. Julie M. Jensen.

The author is grateful for the assistance provided by the administrators and teachers of the Austin and San Antonio Independent School Districts who so willingly gave of their time and energy to help bring this study to fruition.

To his wife Marcia and daughter Aileen, the author expresses his gratitude for their patience, understanding, and endurance.

R. E. S.

The University of Texas at Austin

July 22, 1971

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C H A P T E R I

INTRODUCTION TO THE PROBLEM

The past decade has witnessed a great deal of federally supported research undertaken in an attempt to understand and improve the educational performance of children whose sociocultural heritage differs from their white middle-class peers. The orientation of these programs has been largely reflective of the deficit viewpoint which holds that poor educational performance is the result of impoverished preschool environments causing, in part, underdeveloped language systems which severely handicap the child in the highly verbal school setting. While the nature and extent of unsuccessful school experiences for these children has been well documented, only very recently has social science research been undertaken to determine the causes of failure. According to a growing number of observers, this research has done little more than highlight those aspects of the whole child which deviate from the normative sociocultural behaviors of the white middle-class.[1]

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[1]Stephen S. Baratz and Joan C. Baratz, "Early Childhood Intervention: The Social Science Base of

The oral nature of language acquisition is universal, proceeding from the selective acquirement of phonemes (speech sounds), through the complex arrangement of phonemes into syntactic (sentence patterns) which convey meaning to all members sharing the linguistic system. The Negro child differs from his peer in other minority groups, for those who hold the deficit position, in that his language community is viewed as being monolingual English, but a substandard, lazy, or underdeveloped variety.[1] In contrast, linguistic research, which has generally been associated with the "difference position," has established that the language of the Negro child is systematic, rule governed, developmental in nature and primarily the result of sociocultural factors. One outgrowth of this deficit/difference controversy, orientations seen by some as too simplistic, is an emerging bicultural model for examining the entire Negro experience.[2] The integrity

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In-Institutional Racism," Harvard Educational Review, 40 (February, 1970), 29-51.

[1]These observations have been described and criticized. See, Kenneth S. Goodman, "Dialect Barriers to Reading Comprehension" in Joan C. Baratz and Roger W. Shuy (Eds.), Teaching Black Children to Read (Washington, D.C.: Center for Applied Linguistics, 1969), pp. 14-29.

[2]Charles A. Valentine, "Deficit, Difference, and Bi-Cultural Models of Afro-American Behavior," Harvard Educational Review, 41 (May, 1971), 137-158.

of any language system goes unquestioned so long as the language communities are intact and exist apart from others.

School entrance marks the confluence of differing language communities--the degree of confluence, in part, a function of the integration of social and ethnic groups at the peer and, to a lesser extent, teacher level; in addition is the almost immediate and universal exposure to the language of basal readers--a language at variance with that of standard speakers, not to mention the many groups of nonstandard speakers. Whether these children are considered culturally deficient or different, the school views their sociocultural experience as either impeding or preventing success, and functions to remediate deficiences and eradicate differences.[1] As has been suggested by Cuban, incomplete knowledge by professional educators of the language and life experiences of children can have a deleterious effect upon the child as the learner and the community as supporters of the schools.[2]

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[1]Ibid., p. 146.

[2]Larry Cuban, "Teacher and Community," Harvard Educational Review, 39 (Spring, 1969), 253-272.

Importance of the Study

Language is symbolic and the primary expressive mode is oral. The graphic representation of the symbols is also expressive, but is considered by students of language to be a secondary mode. As communication, language processing may be conceived in two ways: (1) decoding, the process of receiving and processing language presented in either the primary or secondary mode; and (2) encoding, the process of expressive language behavior occurring in either the primary or secondary mode. Nonverbal communication is excluded for purposes of this discussion.

While discussion continues relating to the causes and implications of variant forms of language for the speaker and the listener as well as the relationships of these modes to the decoding process, relatively little attention has been focused upon language variation and orthography from an encoding standpoint. The requirement for accurate spelling has long been a societal demand of the schools; indeed, concern for correct spelling has been manifest for many centuries. Some of the earliest educational research was concerned with the specifications and impact of time allocated for spelling instruction.

While interest as measured by research productivity has waxed and waned during the twentieth century, the majority of papers have focused upon various aspects of instruction, word selection, the nature of error and the physiology and psychology of spelling including correlates of achievement.

The past ten years has seen an increase in research dealing with the English writing system as it corresponds to the oral mode. This research has dealt with standard English and the educational impact vis-a-vis spelling instruction has resulted in a trend away from social utilitarian word selection toward word selection based upon linguistic principles. This study deals with pronunciation and spelling for monolingual English speakers who reside in a geographic region having distinct phonological characteristics, but who participate in an educational experience which for the most part makes little provision for these characteristics.

While the controversy over viewing nonstandard language as a difference or a deficit is unresolved, the fact remains that instruction in the school setting is continuing with incomplete knowledge of the interactions between the language of the learner and specific school-related tasks.

Statement of the Problem

This study deals empirically with certain relationships between selected phonolgoical features and their graphic realization for a group of second grade children enrolled in public schools in San Antonio and Austin, Texas, respectively. The San Antonio pupils included were Negro, and the Austin pupils were white. Pronunciation and spelling comparisons have been made within and between groups. Relationships among selected variables, phonological differences, and spelling deviations have been examined. A detailed description of the variables and the procedures employed is found in Chapter Three.

Hypotheses

This study, dealing with Negro and white second grade children in San Antonio and Austin, Texas, respectively, was undertaken to answer the following questions:

1. How do the groups of children compare on the variables of race, sex, age, phonological differences and spelling deviations?
2. How do the groups compare on the variables of race, sex, age, omitted words and irrational words?

3. What are the type (rational and irrational) of spelling deviation within groups, and how do these compare between groups?
4. What are the differences among selected phonological differences and spelling deviations between groups?
5. What are the differences among selected phonological differences and spelling deviations within groups?

Instrumentation

The instrument used for the phonological assessment was the Gloria and David Oral English test. Developed by Language Arts Inc., Austin, Texas, it has been used in assessing the oral language of Negro children in the Northeast, Appalachian whites in West Virginia, Navahos in New Mexico, Acadians in Louisiana, Choctaw Indians in Mississippi, Mexican-Americans and Negroes in Texas and migrant Mexicans in Indiana.[1] The test is a sentence

[1]Conversation with Mr. William R. Devine, President, Language Arts, Inc., March 12, 1971; the Gloria and David Oral English test was adapted from the Gloria and David Beginning English series, Part No. 6, copyright 1958 by Language Arts Inc., Austin, Texas.

repetition task consisting of forty sentences and twenty illustrations, one for every two sentences.

The spelling instrument was developed from an analysis of the oral language assessment. Fifteen words were selected on the basis of the frequency of phonological differences for both groups. Discussion of administration and scoring for both instruments is found in Chapter Three.

Definition of Terms Used

Dialect: This term has been defined by Loban as:

> differing ways of speaking a language . . . yet the differences are not so great that persons using different dialects cannot communicate.[1]

While the term has come to have sociocultural connotations for many, its use in this study will reflect the above definition.

Decoding: The process of obtaining meaning from spoken or written language. The primary mode is oral and the secondary mode is visual.

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[1]Walter Loban, Problems in Oral English, Research Report No. 5, National Council of Teachers of English, 1966, p. 1

Dipthongization: The process by which a vowel sound is significantly altered during production so as to result in a combination of vowel or vowel plus semi-vowel sounds.

Encoding: The process of transmitting meaning either by speaking or writing. The primary mode is oral and the secondary mode is visual.

Grapheme: A minimum graphic representation of a speech sound (a, d, ph, th).

Phoneme: The smallest unit of sound distinguishing utterances (/b/, /p/, /θ/).

Standard English: For purposes of this study, standard English is defined as that variety of English not having regional reference, e.g., the variety of English spoken by network radio and television newscasters.

C H A P T E R I I

REVIEW OF SELECTED LITERATURE

Oral Language Development

While the term "language" has been defined in various ways, McDavid's was deemed appropriate for this study:

> Language is a system of arbitrary vocal signals by which a social group cooperate and interact and transmit their culture.[1]

This sociocultural definition stands in contrast to the following definition by Thomas which places language within the context of symbolic logic:

> A language consists of a set of sentences formulated from a set of elements, according to a set of operations, that obey a set of laws.[2]

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[1]Raven I. McDavid, "The Cultural Matrix of American English," Elementary English, 42 (January, 1965), 15.

[2]Owen Thomas, "Competence and Performance in Language" in Alexander Frazier (Ed.), New Directions in Elementary English (Champaign, Ill.: National Council of Teachers in English, 1967), p. 89.

Both definitions include that aspect of language under consideration in this study, i.e.--sound characteristics. Neither one states explicitly that language is more than a tool for carrying on the affairs of organized societies, for, as Fishman stated:

> Language, itself, is content, a referent for loyalties and animosities, an indicator of social statuses, and personal relationships, a marker of situations and topics as well as of the societal goals and the large-scale value-laden areas of interaction that typify every speech community.[1]

Research conducted with monolingual English speakers during the past forty years points to the fact that the normally developing child enters school with an oral language system containing the majority of the sound, structural, and lexical features of his speech community essential for communication, and that this acquisition is patterned and complete between seven and eight years of age.[2] Differences in the age of maturity of articulation

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[1]Joshua A. Fishman, Sociolinguistics, A Brief Introduction (Rowley, Mass.: Newbury House Publishers, no copywrite date), p. 1.

[2]Irene Pool, "Genetic Development of Articulation of Consonant Sounds in Speech," Elementary English Review, 11 (June, 1934), 159-61; Mildred C. Templin, Certain Language Skills in Children, University of Minnesota

in normal children were found by Templin to be influenced by sex and socioeconomic status, with boys taking about one year longer than girls, and lower socioeconomic groups taking about one year longer.[1] Moroney and others in discussing pathological articulation problems suggested that the age range that research indicated exists for the acquisition of correct articulation may be a function of (1) maturation of perceptual and motor correlates; and (2) maturation of modalities of learning.[2] Wepman indicated that a strong positive relation exists between the development of auditory discrimination and pronunciation.[3]

Press, 1957; George Manolakes, "Competencies Children Need" in Helen K. Mackintosh (Ed.), Children and Oral Language, ASCD, IRA, NCTE, 1964. Beth A. Wellman, Ida G. Mengert, and Dorothy E. Bradbury, Speech Sounds of Young Children, University of Iowa Studies in Child Welfare, 5 (1936). H. M. Williams, A Qualitative Analysis of the Erroneous Speech Sound Substitutions of Preschool Children, University of Iowa Studies in Child Welfare,

[1]Templin, p. 58.

[2]Ann S. Morency, Joseph M. Wepman, Paul S. Weiner, "Studies in Speech: Developmental Articulation Inaccuracy," Elementary School Journal, 67 (March, 1967), 329-337.

[3]Joseph M. Wepman, "Auditory Discrimination, Speech and Reading," Elementary School Journal, 60 (March, 1960), 225-233.

According to Carroll some of the best research on the development of phonemic structure has been done by linguists but the samples of children used have almost invariably been small.[1] In the previous speech acquisition research cited, the emphasis has been upon the normative development of phonemic elements with age norms in years and months being the most frequent means of reporting the data. Samples have usually been quite large with care taken to insure that the speech elicitation sessions were uniform.

In contrast to the findings of the speech studies cited, i.e., that the developing child's phonemic structure gradually approximates the adult phonemic structure, has been the research of Jakobson. He hypothesized that children develop the sound system of their society by mastery of the series of contrasting sounds which comprise their speech community. These pairs occur at once and the complete range of sounds comprising the language of the child's community is learned through contrastive acquisition rather than through gradual approximation to mature

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[1]John B. Carroll, "Language Development in Children" in Sol Saporta (Ed.), Psycholinguistics: A Book of Readings (New York: Holt, Rinehart, and Winston, 1966).

language models. Jakobson has analyzed phonemes as "bundles" of distinctive features--qualities of sound including place and manner of articulation which serve as the ultimate discrete signals in the community.[1] Ervin and Miller have suggested that the passive control of phonological features, i.e., the ability to hear a contrast, precedes the production of one or both of the contrasts.[2] As an example they indicate that the child can hear the distinction between /s/ and /š/ before he can produce it.[3]

The distinctive features system of phonemic analysis was utilized in a recent study of the oral language production of 384 English-speaking children in grades one through twelve.[4] Assigning to each speech sound a measure of complexity based on a number of phonetic features, it

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[1]Roman Jakobson, C. Gunnar, M. Fant, and Morris Halle, Preliminaries to Speech Analysis (Cambridge, Mass.: The MIT Press, 6th printing with revisions, 1965).

[2]Susan M. Ervin and Wick R. Miller, "Language Development" in Joshua A. Fishman (Ed.), Readings in the Sociology of Language (The Hague: Moulton, 1968), pp. 68-98.

[3]Ibid., p. 70.

[4]Frederick Williams (Ed.), Analysis of Production Errors in the Phonetic Performance of School-Age Standard English-Speaking Children, Final Report OEG 32-15-0050-5010 (607), Center for Communications Research, The University of Texas at Austin, 1970.

was observed that 186 children exhibited articulation errors of one kind or another; that, with several exceptions, errors decreased with age; and that less complex phonemes were substituted for more complex ones when substitution occurred.[1] An unexpected finding was the greater frequency of error in grade two as compared with grade one for /z/, /r/, /l/, /θ/, /s/, and /š/.[2] Other studies have indicated that these sounds are among the last to be acquired.

Schneiderman, in a study of the relationships between articulatory ability and general language ability of upper middle-class six and seven year old subjects, found that no significant relationship existed between articulation ability and chronological age.[3] She did, however, find a relationship with mental age.

Carroll quoted McCarthy who, after studying the language development of children, stated that mean sentence length was:

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[1] Ibid., pp. 53, 58.

[2] Ibid., p. 47.

[3] Norma Schneiderman, "A Study of the Relationship between Articulatory Ability and Language Ability," Journal of Speech and Hearing Disorders, 20 (December, 1955), 357-364.

> . . . the most reliable, easily determined, objective, quantitative and easily understood measure of linquistic maturity.[1]

This measure has been used frequently in the past, and a number of recent studies dealing with structural and semantic aspects of children's language have been reviewed by Jensen.[2]

Utilizing casual and careful oral language situations with average and superior fifth graders, Jensen found nonsignificant differences for 22 of 28 comparisons of fluency measures for the ability of sex variables.[3] Although many differences were found for males and females, few were statistically significant and no consistent pattern was discernible. Where nonsignificant differences were observed, they often favored males, prompting the author to conclude:

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[1]Dorothea McCarthy, "Language Development in Children" in Leonard Charmichael (Ed.), A Manual of Child Psychology (2nd Ed., New York: Wiley), pp. 492-630; cited in Carroll, p. 339.

[2]Julie M. Jensen, "A Comparative Investigation of the Casual and Careful Oral Language Styles of Average and Superior Fifth Grade Boys and Girls," unpublished doctoral dissertation, The University of Minnesota, 1970.

[3]Ibid., p. 104.

> It would be wise for educators to revise any misconceptions regarding the inferior oral language capabilities of males.[1]

Research findings regarding the sex variable and the language of the elementary school child are also contradictory in the area of spelling, where research has not produced consistent findings related to written performance and measures of verbal ability.

Loban, in a longitudinal study of children's language from kindergarten through grade six, found that on a number of measures boys were clustered at the extreme those who did poorly in language were less competent than the girls who did poorly, whereas those who did well tended to exceed the girls who did well.[2] Carroll has suggested that child-rearing practices in American culture have changed in the past generation, tending to reduce the sex differential in the development of language.[3] He indicates that greater adult-child permissiveness and greater verbal stimulation may be partially responsible.

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[1] Ibid., p. 113.

[2] Loban, op. cit.

[3] Carroll, op. cit.

Dialectology

Languages may vary in phonological, syntactical, and lexical features. Varieties of a language which are mutually intelligible are referred to as dialects. Much of the study of American English dialects has been done by linguistic geographers. In addition to recording differences in occurrence of pronunciation, syntax and lexicon, the dialectologist has investigated causes for variation. Many people have offered explanations for dialects that generally fall into two categories--physiological and climatic.[1] Serious students of dialect have observed three factors that have contributed to regional variation:

(1) Patterns of settlement history.

(2) Patterns of population shift.

(3) Patterns of physical geography.[2]

Organized investigations of the patterning of American English began in the late 1920's with systematic study

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[1]W. Nelson Francis, The Structure of American English (New York: The Ronald Press, 1958).

[2]Roger W. Shuy, Discovering American Dialects (Champaign, Ill.: National Council of Teachers of English, 1967), pp. 33-38.

of the regional speech of New England.[1] The development of techniques for data collection and the training of field workers served as a model for subsequent investigations. The goal was to be the Linguistic Atlas of the United States and Canada. The American Dialect Society, founded in 1889, provided the major impetus for this project and its publications have provided both the amateur and professional with guidelines for collecting data as well as a means of sharing findings.[2]

In the Linguistic Atlas Project three types of social dialects were recognized and incorporated in the methodology--cultivated speech, common speech, and uneducated speech.[3] These categories were relative and variations existed in terms of definition among dialect regions. The locations these categories occupied on a continuum could also vary within dialect regions.[4]

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[1]Hans Kurath (Ed.), Linguistic Atlas of New England (Providence, R.I.: Brown University Press, 1942).

[2]George P. Wilson, Instructions to Collectors of Dialect, University of North Carolina; American Dialect Society, No. 1 (April, 1944).

[3]W. Nelson Francis, p. 535.

[4]Ibid., p. 536.

A series of studies, many similar in goals and methodologies to the Project studies, have been undertaken in Texas during the past forty years.[1] The only complete survey of the state on any of the language dimensions of the Project was Atwood's.[2] Several studies have been done in Central Texas dealing with one or more of the dimensions with the most recent being Heard's.[3] She observed that the dialect of the area was mixed with elements of General Southern (/ei/ in egg) generally limited to specific words rather than being patterned. The predominant influences were Northern or Midland (/ɔ/ in law, /ɪ/ in ear, /ɛ/ in merry and Mary). In both Austin and San Antonio the heterogeneous population resulting from large

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[1]Professor Donald Boyd of The University of Texas at Austin has compiled a bibliography of theses and dissertations dealing in part with the speech of Texas. These appear in the Newsletter of the American Dialect Society, 2 (June, 1970), 3 (November, 1970). In addition, Celeste V. Dodd, "A Linguistic Description of the Verbal Behavior of a Class of First Grade Children," unpublished doctoral dissertation, The University of Texas at Austin, 1968. Betty R. Heard, "A Phonological Analysis of the Speech of Hays County, Texas," unpublished doctoral dissertation, Louisiana State University, 1969.

[2]Elmer Bagby Atwood, The Regional Vocabulary of Texas (Austin, Tex.: The University of Texas Press, 1962).

[3]Heard, op. cit.

numbers of military, government and university affiliated people dispersed throughout both cities has resulted in a great variety of patterns which may be altering the historic dialect. The author has observed a variety of patterns in the speech of the public school teachers.

In the Project, social aspects of language in the speech community were examined primarily from a contrastive standpoint and intensive investigation of the social differences in dialects has been a recent development. Several studies have incorporated some of the Project methodologies in focusing greater attention upon non-linguistic variables. Labov states that until very recent years linguists have restricted themselves primarily to linguistic data in explaining language phenomena.[1] Non-linguistic variables, i.e., family size, sex, family income, have played a significant role in some of the speech acquisition studies mentioned earlier and generally these variables have received attention in research conducted by psychologists, educators and speech professionals.

While the speech of Negroes has been of interest to students of language for many years, current research

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[1]William Labov, The Social Stratification of English in New York City (Washington, D.C.: The Center for Applied Linguistics, 1966).

has grown out of, and given impetus to, a growing awareness of the specifics of Negro speech as a complex socio-cultural phenomena having stratification characteristics not unlike those referred to by Labov:

> Traditional dialect studies have shown that isolation leads to linguistic diversity while the mixing of populations leads to linguistic uniformity. Yet in the present study of a single speech community we see a new and different situation. Groups living in close contact are participating in rapid linguistic changes which lead to increased diversity rather than uniformity.[1]

Stewart, in studying the phenomena of linguistic change in Washington, D.C., indicated a relationship between language behavior and informal age groupings among young males.[2] Referring to this language as basilect, Stewart indicated it to be the lowest form of language in the community hierarchy and that it existed among many but not all children; further, it existed even though others in the family did not use it. He suggested that this form is closely related to peer-group interaction.[3] Abrahams in

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[1] Ibid., p. 7.

[2] William A. Stewart, "Urban Negro Speech: Sociolinguistic Factors Affecting English Teaching" in Roger Shuy (Ed.), Social Dialects and Language Learning (Champaign, Ill.: National Council of Teachers of English, 1964), p. 16.

[3] Ibid.

discussing the acquisition of language among Negro children stated that most lower-class Negro children enter school with a well-developed language system that has been learned not so much from adults as from other children.[1]

Several rather complete descriptions of Negro speech have appeared in the past five years.[2] These studies have supported the notion of Negro dialect as a fully developed linguistic system. The reluctance on the part of many to accept the idea of Negro dialect as a system has been explained by Baratz and Baratz as due to (1) the dialect's superficial similarity to standard English, (2) its threat to the middle-class Negro, and (3) the current

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[1]Roger D. Abrahams, "Black Talk and Black Education" in Alfred C. Aarons, Barbara Y. Gordon and William A. Steward (Eds.), The Florida FL Reporter, 7 (Spring/Summer, 1969), 12.

[2]Edmund A. Anderson, A Grammatical Overview of Baltimore Non-Standard Negro English, The Johns Hopkins University; the Center for the Study of Social Organization of Schools, No. 65 (1970). Ralph W. Fasold and Walt Wolfram, "Some Linguistic Features of Negro Dialect" in Ralph W. Fasold and Roger W. Shuy (Eds.), Teaching Standard English in the Inner City (Washington, D.C.: Center for Applied Linguistics, 1970). William Labov, Paul Cohen, Clarence Robins, and John Lewis, A Study of the Non-Standard English of Negro and Puerto Rican Speakers in New York City, Phonological and Grammatical Analysis, Vol. 1, Final Report, Cooperative Research Project No. 3288, U.S. Office of Education, 1968. Robert L. Politzer and Diana E. Bartley, Standard English and Non-Standard Dialects: Phonology and Morphology (Palo Alto, Calif.: Stanford Center for Research and Development in Teaching, Research and Development Memorandum No. 46, 1969).

white liberal doctrine insists that the American Negro is "just like" the American white person.[1] While an examination of these factors is beyond the scope of this review, there can be no question that the nonlinguistic variables are receiving increased attention. While investigations are far from complete in dealing with these complexities, research dealing with language diversity and social stereotyping has been undertaken.

The relationships between language and social stratification have been explored in terms of attitudes held by listeners to speech. Williams, in a study using audio tapes from the Detroit Dialect Study, developed semantic differential scales for use with white and Negro school teachers in exploring attitudes toward oral language.[2] Two factors emerged after factor analysis:

1. Confidence-eagerness
2. Ethnicity-nonstandardness

Findings included that white teachers who tended to rate,

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[1]Stephen S. Baratz and Joan C. Baratz, "Negro Ghetto Children and Urban Education: A Cultural Solution" in Alfred C. Aarons et al., pp. 14, 151.

[2]Frederick Williams, "Psychological Correlates of Speech Characteristics: On Sounding Disadvantaged," Journal of Speech and Hearing Research, 13 (September, 1970).

based on speech, a child as high status also tended to identify the child as being white even if he were Negro and that judgment of socioeconomic status coincided to a greater extent for Negro than for white speakers. These findings were consistent with those of an earlier study by Naremore in suggesting that teachers responded to oral language in a stereotypic manner.[1] Williams and others conducted a reliability and validity study of the two-factor model for explaining teachers' evaluations of children's speech using audio, video and audiovisual modes of presentation. They found that the two-factor model was particularly appropriate for use with the audiovisual mode.[2] Further research with the audiovisual mode and the two-factor scales indicated a high relationship between stereotyped descriptions of children provided the teacher subjects and subsequent ratings of the children's

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[1]Rita C. Naremore, "Teacher's Judgments of Children's Speech: A Factor Analytic Study of Attitudes," unpublished doctoral dissertation, University of Wisconsin, 1969.

[2]Frederick Williams, Jack L. Whitehead, Jane Traupmann, Semantic Differential Scaling of Audiovisual Recordings of Children's Speech Samples, Technical Report Center of Communication Research, The University of Texas at Austin, July, 1970 (A).

speech samples.[1] Further, it was determined that stereotypes persist over time. When a series of videotapes dealing with the oral language of the children was presented to the teachers, there was no significant change in the postintervention ratings of the children.[2]

Spelling

Concern for correct spelling among children and adults has been manifest for many centuries. Hall suggested four sources of pressure that have operated to insure orthographic uniformity;

1. Social--A desire to separate the sheep from the goats by the facile criterion of correctness.
2. Psychological--The sadistic desire of some purists to enforce uniformity.
3. Scholastic--The desire of many teachers to have something which can easily be marked "right" or "wrong" with reference to an absolute authority, the dictionary.

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[1]Frederick Williams, Jack L. Whitehead, Jane Traupmann, Correspondence Between Semantic Differential Ratings of Children's Speech and Speech Anticipated on the Basis of Stereotype, Technical Report, Center for Communications Research, The University of Texas at Austin, August, 1970 (C).

[2]Ibid., p. 7.

4. Economic--The desire of unscrupulous dictionary-makers to have something to sell a gullible public as "authoritative" and the need of secretarial and similar schools to have something to teach.[1]

While humor is evident in the foregoing, undoubtedly there are elements of truth. Unlike oral language, there are no acceptable varieties of spelling behavior suitable for various social contexts. Regardless of one's primary encoding capabilities, society demands invariant secondary encoding accuracy in the orthographic realization of sounds and, to an only somewhat lesser extent, the syntactical arrangement of the resulting morphemes.

Efforts to modify English orthography have waxed and waned since the late nineteenth century. While statements about the inadequacy of the Roman alphabet for accurately representing the sounds of English have culminated in several attempts to introduce broadly-based change, the results have been far from successful despite the efforts of such notables as Thorstein Veblen, George Bernard Shaw and Godfrey Dewey.[2]

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[1]Robert A. Hall, Jr., Introductory Linguistics (Philadelphia: Chilton, 1964), p. 435.

[2]John R. Malone, "The Larger Aspects of Spelling Reform," Elementary English, 39 (April, 1962), 435-445.

In regard to the English alphabet Fries has stated:

> The English alphabet is phonemically based but is not, as used for English, a "phonemic alphabet" in the sense that there is only one letter symbol for each phoneme and only one phoneme for each letter symbol. . . . Although phonemically based, the individual letters of the alphabet with which we write do not stand in a one for one correspondence to the separate phonemes of our language.[1]

Modified alphabets have been developed over the years, the most widespread currently being the Initial Teaching Alphabet (i.t.a.).[2] Research has been undertaken to examine the effects of the modified alphabet on reading and spelling achievement and the results have been inconclusive.[3] A recent longitudinal study comparing the i.t.a. with traditional orthography (t.o.) found no significant differences at the end of four years in reading achievement between groups using materials printed in

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[1]Charles C. Fries, Linguistics and Reading (New York: Holt, Rinehart and Winsten, 1963), p. 63.

[2]John Downing, The Initial Teaching Alphabet (New York: The Macmillan Co., 1964).

[3]Thomas D. Horn, "Spelling," The Encyclopedia of Educational Research (4th edition, New York: The Macmillan Co., 1969).

i.t.a. and t.o.[1] Petty and Murphy, in a study of fourth and fifth grade pupils who received i.t.a. reading instruction, found that there was no differential favoring the i.t.a. group over the t.o. group in the ability to generalize sound/symbol correspondences.[2] After analyzing the nature of error in spelling, the authors concluded that there was no difference in the kinds of error, i.e.--rational or irrational--made by the two groups.[3] The advocates of spelling reform have continued to pursue their goals; however, even if the results of intervention studies were more conclusive, the cultural dimension of spelling is a variable not to be discounted, for as Hodges has stated:

> Spelling like language in general has its roots buried deep in the soil of culture and strongly resists efforts at digging and replanting.[4]

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[1]Doris E. Dittman, "Initial Teaching Alphabet Versus Traditional Orthography: One, Two, Three, and Four Years After Beginning Instruction," unpublished doctoral dissertation, Northern Illinois University, 1969.

[2]Walter T. Petty and J. Brien Murphy, "The Spelling Achievement of Third, Fourth, and Fifth Grade Pupils Who Received i.t.a. Instruction." Paper presented at the annual convention of the American Educational Research Association, New York, February 6, 1971, p. 5.

[3]Ibid.

[4]Richard E. Hodges, "A Short History of Spelling Reform in the United States," Phi Delta Kappan, 7 (April, 1964), 330.

The consistency with which graphemes represent the sounds of English was investigated by Moore.[1] He found that 80 percent of the over 12,000 phonemes comprising the 3,000 word corpus were spelled consistently.[2] Criticism from spelling authorities as to the size of the corpus and several decisions made regarding classifications of phoneme-grapheme relationships culminated in a two-phase project to further explore relationships observed in the Moore study. The first phase was designed to analyze a corpus of over 17,000 words highly representative of the lexicon of an educated resident of the United States.[3] When syllabic stress and position of phonemes was considered, correspondences approached or exceeded the 80 percent criterion. The second phase consisted of developing a set of rules which would:

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[1]James T. Moore, Jr., "Phonetic Elements Appearing in a 3,000 Word Spelling Vocabulary," unpublished doctoral dissertation, Stanford University, 1951.

[2]Paul R. Hanna, Jean S. Hanna, Richard E. Hodges, and Edwin H. Rudorf, Jr., Phoneme-Grapheme Correspondences as Cues to Spelling Improvement, U.S. Office of Education Cooperative Research Project No. 1991, Government Printing Office, 1966, p. 1.

[3]Ibid., p. 13.

1. Spell correctly all words in the corpus that are capable of being spelled on phonological principles alone, and

2. Indicate all words and the particular phonemes within the words that can be spelled only by taking into consideration additional factors of morphology, and syntax.[1]

Of the more than 17,000 words, some 49 percent were spelled correctly, 37.2 percent were spelled with one error, 11.4 percent with two errors and 2.3 percent were spelled with 3 or more errors, leading the researchers to suggest that, with approximately 86 percent of the words spelled correctly or with one error, the traditional approach to learning words in their entirety could be modified to include a greater emphasis on a phonological approach to the teaching of spelling.[2] They indicate, however, that spelling should not rely exclusively upon a phonological approach, since many words need to be learned primarily through other sensory modes.[3]

Yee undertook a study to determine the value of phonetic generalizations in spelling instruction.[4]

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[1] Ibid., p. 111.

[2] Ibid., p. 123.

[3] Ibid.

[4] Albert H. Yee, "Is the Phonetic Generalization Hypothesis in Spelling Valid?" Journal of Experimental

Using over 2,000 subjects in grades two through six he found that, while one group which received phonetic instruction had the second highest mean posttest score, the group with the highest had received no treatment other than a pretest. This suggested to the researcher that test-study methods of spelling instruction might be of equal or potentially greater value than phonetic instruction if a decision as to one or the other had to be made, because the former method could conceivably result in pupils' greater concern for "checking and concentrating upon the spelling of individual words."[1]

Venezky took Hanna's 80 percent figure and concluded that with a word containing four sounds, the probability of spelling it correctly by a student who had been taught only the regular (rule-conforming) spellings of each significant sound in English would be .80 × .80 × .80 × .80 or .4096 (41 percent).[2] He pointed out that

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Education, 37 (Summer, 1969), 82-91, reprinted in Carl Personke and Albert H. Yee, Comprehensive Spelling Instruction (Philadelphia: International Textbook Co., 1971).

[1]Ibid., p. 67.

[2]Richard L. Venezky, Linguistics and Spelling, Working Paper No. 15, Wisconsin Research and Development Center for Cognitive Learning (Madison: The University of Wisconsin, April, 1969), p. 11.

relationships more pedagogically relevant than the probablistic nature of "regular" and "irregular" must be developed for classroom use.[1]

In a study dealing with reading and spelling, Henry found that a basal reading program emphasizing phoneme-grapheme relationships produced significantly higher spelling achievement for both regular and irregular words than did a basal reading program in which consistency in phoneme-grapheme relationships was not controlled in the vocabulary.

Horn has reviewed research showing that the process of spelling is highly related to visual perception, visual discrimination, and visual memory.[3] Several recent studies using different age samples and markedly different locations have contradictory findings. Russell found no significant relationship between visual memory and spelling

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[1]Ibid., p. 14.

[2]Harold L. Henry, "The Effect of Contrasting Reading Programs with Varying Emphases on the Regularity of Phoneme-Grapheme Correspondences on Third Grade Spelling Achievement," unpublished doctoral dissertation, University of California, Berkeley, 1967.

[3]Horn, op. cit., p. 1287.

among high school seniors.[1] In a study of factors in spelling attainment in English children ages nine to eleven, visual perception along with verbal intelligence and quality of handwriting were found to be the best predictors.[2]

Comparing visual and auditory modes with an auditory mode alone, Schroeder found that using both sensory modes was superior to auditory alone when the subjects checked their own tests.[3] The experimental group was given correct words orally and visually and the control group orally.

Among the other physiological and psychological correlates of spelling ability, the sex variable has received considerable attention over the years. Much current language and spelling research dealing with the sex variable has tended toward nonsignificant differences. Peters found no significant difference for sex

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[1]Kenneth S. Russell, "The Relationships of Phonetic Skill, Rote Memory, Verbal Achievement and Visual Memory to Spelling Achievement as Measured by Three Different Formats," unpublished doctoral dissertation, The University of Idaho, 1968.

[2]Margaret L. Peters, Success in Spelling (Cambridge, Eng.: Cambridge Institute of Education, 1970).

[3]Howard H. Schroeder, "An Analysis of the Use of Visual and Auditory Perception in Spelling Instruction," unpublished doctoral dissertation, The University of Iowa, 1968.

in spelling attainment.[1] Miller found that a reading program supplemented with phonics instruction produced no significant differences by sex for either reading or spelling attainment with first graders.[2] In contast, Yee found that the greatest source of variance was sex.[3] He stated that differences between the sexes in spelling achievement needed to be accepted and this variable as well as others should be considered when developing and implementing spelling programs.[4]

In a series of experimental studies carried out in Sweden, school-age females were observed to exhibit overall higher means on spelling tests and tests measuring primarily verbal abilities.[5] Auditory perception was found to be a consistent factor in correct spelling.[6]

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[1]Ibid., p. 30.

[2]Harry B. Miller, "Instruction in Phonics and Success in Beginning Reading and Spelling," unpublished doctoral dissertation, The University of Pittsburgh, 1962.

[3]Yee, op. cit., p. 67.

[4]Ibid.

[5]Erik Wallin, Spelling: Factorial and Experimental Studies (Goteborg, Sweden: Elanders Boltryckeri Aktiebolag, 1967), p. 44.

[6]Ibid., p. 94.

Visual discrimination was observed to correlate with giving attention to details, a factor found to exist to a greater degree with successful spellers. Girls were found to score significantly higher on this factor as well as on a measure of speed and accuracy. It was suggested that this ability was important for the learning of phoneme/grapheme relations whenever a visual mode of presentation was used in the instructional process.

A paradigm for the analysis of spelling behavior in its totality has been proposed by Personke and Yee.[1] Based on communication theory, this model is predicated upon the felt need to spell a word whether this need be conscious or unconscious.[2] Spelling behavior as delineated by the model is an active process of need reduction with components extrinsic and intrinsic to the speller. The role of the teacher in developing a mature speller is to maximize the opportunities for these components to become a part of the total spelling behavior of the child.[3]

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[1]Carl Personke and Albert H. Yee, "A Theoretical Model of Spelling Behavior," Elementary English, 43 (March, 1966), 278-284. Reprinted in Carl Personke and Albert Yee, Comprehensive Spelling Instruction (Philadelphia: International Textbook Co., 1971).

[2]Ibid., p. 16.

[3]Ibid., p. 27.

In a study of the phonology and spelling of preschool children from relatively privileged middle-class homes, Read observed that the invented spellings of these children reflected phonological judgments based in large measure upon articulatory features of the phonemes.[1] He found that certain articulatory features tended to be more pervasive in the written realization than others--backness over tenseness and height for vowels and place of articulation over voicing and nasality for consonants.[2] Read suggested that learning to spell need not be based upon learning patterns of grapheme/phoneme correspondences; rather, the child needs to become aware of the differences between standard orthography and his own knowledge of letter-sound relationships and make, what is for many children, rather minor adjustments to successfully reconcile differences.[3]

Students of language have, over the years, suggested that regional variations in speech would have an

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[1]Charles Read, "Pre-School Children's Knowledge of English Phonology," Harvard Educational Review, 41 (February, 1971), 33.

[2]Ibid., p. 31.

[3]Ibid., p. 34.

effect on spelling.[1] Criticism has been directed at the Hanna study for generalizations based on one dialect of American English, that of the Second Edition of Merriam Webster's New International Dictionary.[2] Brengelman states that teachers who want to teach children to pronounce correctly so that they might have less difficulty with spelling are assuming that there is a dialect of American English which is the best for spelling purposes.[3] He states that no dialect of American English provides strictly phonological clues for "difficult" words.[4] Awareness of of the dialect variable led Personke to accept phonetic misspellings on tests in a study comparing the spelling of American and Scottish children.[5]

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[1]Ernest Horn, "Phonetics and Spelling," The Elementary School Journal (May, 1957), pp. 424-432. Reprinted in Verna Dieckman Anderson, Paul S. Anderson, Francis Ballantine, and Vergil M. Howes, Readings in the Language Arts (New York: The Macmillan Co., 1968).

[2]For a summary of reactions to the Hanna study, see Thomas D. Horn, "Research Critiques," Elementary English, 46 (February, 1969), 210-212.

[3]Frederick H. Brengelman, "Dialect and the Teaching of Spelling," Research in the Teaching of English, 4 (Fall, 1970).

[4]Ibid., p. 135.

[5]Carl Personke, "Spelling Achievement of Scottish and American Children," Elementary School Journal, 66 (March, 1966). Reprinted in Carl Personke and Albert H. Yee, Comprehensive Spelling Instruction (Philadelphia: International Textbook Co., 1971).

In a study comparing three dialect areas, Graham and Rudorf found reason to question the applicability of the Hanna study phoneme-grapheme correspondences across dialects.[1] In a second study using data from the first and adding a fourth dialect area, samples of children in grade six considered "accomplished" spellers were compared on nineteen phonemes.[2] Six were found to be significant at the .01 level and two at the .05 level between at least two of the four groups.[3] The vowel phonemes showed the greatest variation. Samples of second graders, considered beginning spellers, were administered a series of lessons dealing with specific phoneme-grapheme relationships representing the dialect of the Hanna study in an attempt to determine the effect of these instructions on the children's spelling vis à vis the regional dialect. The purpose of this instruction was to determine if initial

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[1]Richard T. Graham and E. Hugh Rudorf, "Dialect and Spelling," Elementary English, 47 (March, 1970), 363-376.

[2]E. Hugh Rudorf and Richard T. Graham, An Investigation of the Effect of Dialect Variation Upon the Learning of Phoneme-Grapheme Relationships in American English Spelling, Final Report, OEG 6-8-008095-0015 (051) ED 039 259.

[3]Ibid., p. 17.

spelling instruction in specific phoneme/grapheme relationships would reduce the dialect influences determined to exist for the sixth grade "accomplished" spellers. An analysis of pre-posttest differences indicated that reduction of the dialect influences had occurred following instruction for most of the features.[1]

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[1] Ibid., p. 41.

C H A P T E R I I I

A DESCRIPTION OF THE STUDY AND THE STATISTICAL PROCEDURES USED

The Participants

The children who participated in this study were second graders enrolled in two schools in San Antonio and three schools in Austin, Texas. The schools selected in San Antonio were participating in a two-year Teacher Corps project, a cooperative undertaking by the San Antonio Independent School District and the University of Texas at Austin. The two San Antonio schools have contiguous boundaries and serve a predominantly Negro population. The ethnic composition in percent follows:

	Negro	Mexican-American	Anglo
Miller	88	11	1
Gates	97	2	1

Only the Negro children participated in this study.

The three schools selected from the Austin Independent School District have contiguous boundaries and

serve a predominantly white population. The schools are located in the southern part of the city, historically a rural area but experiencing rapid suburban growth. The ethnic composition in percent follows:

	Negro	Mexican-American	Anglo
Odom	3	7	91
Pleasant Hill	0	20	80
Manchaca	7	17	79

In addition, two schools had one American Indian child each, and one school had three Oriental children. Odom school is a new facility completed within the past several years to accommodate the influx of primarily middle-class families. A number of residents are stationed at Bergstrom Air Force Base. Table 1 shows the place of birth for the children in Austin and San Antonio for whom data were available.

Children were selected from all second grade classrooms in the five participating schools--eight classrooms in San Antonio and five in Austin. A minimum of ten children were randomly selected from each classroom providing a group of 100 children in San Antonio and 95 i Austin. Due to the poor quality of recordings for some

TABLE 1

PLACE OF BIRTH OF CHILDREN IN THE WHITE (AUSTIN) AND NEGRO (SAN ANTONIO) GROUPS, 1971

	White N = 68*	%	Negro N = 61*	%
Native to the City	28	41	46	75
Elsewhere in Texas	15	22	5	8
South/Southwest	8	12	5	8
United States--other areas	11	16	2	3
Abroad	6	9	3	5

*Information not available for all children

children, the desire to eliminate children with diagnosed speech problems and absences the day of the spelling test, the final group consisted of 72 children in Austin and 62 children in San Antonio. Table 2 contains the composition of the groups by sex, and the mean age in months for both groups. Table 3 contains an occupational description of the groups.

Occupational classifications are only as meaningful as the quality of information available. The school records consulted for this contained information submitted by parents. The information was incomplete and in many instances place of employment was listed rather than occupation. For these reasons it was decided to use the abbreviated classification found in Table 3. It is readily apparent from Table 3 that the two groups differed in head-of-household occupation. Because of the questionable accuracy of these data, they were not used in the analyses. Additional information regarding the pupils including family size, achievement scores in reading and spelling, and a standardized measure of intelligence was available for the white but not for the Negro children.

TABLE 2

COMPOSITION OF THE GROUP BY SEX AND MEAN AGE IN MONTHS, FOR A GROUP OF 62 NEGRO PUPILS (SAN ANTONIO) AND 72 WHITE PUPILS (AUSTIN), 1971

	Number in Sample	%	Mean Age in Months
White			
Males	33	46	98.0
Females	39	54	97.9
Negro			
Males	35	56	98.9
Females	27	44	97.5

TABLE 3

OCCUPATIONAL CLASSIFICATION OF SUBJECTS--HEAD-OF-HOUSEHOLD OCCUPATION, N'S STATED FOR A GROUP OF 62 NEGRO PUPILS (SAN ANTONIO) AND 72 WHITE PUPILS (AUSTIN) 1971

	White N = 71*	%	Negro N = 57*	%
1. Bankers, lawyers, college teachers, military officers, etc.	8	11	0	0
2. School teachers, insurance salesmen, tradesmen, proprietors, etc.	47	66	18	30
3. Semiskilled workers, laborers, domestics, truck drivers, welfare, etc.	16	23	39	65

*Information not available for all children.

Instrumentation

Oral Language Assessment

The Gloria and David Oral English test was utilized in this study to obtain a measure of oral language production. A sentence repetition task, this instrument consists of forty sentences administered individually.[1] Administered in one sitting of approximately eight minutes duration, each child sits in front of a television-like piece of equipment, The Teaching Assistant, with a combination headset-microphone and repeats each sentence during the time provided. While listening and responding, the child views a series of colorful pictures which advance automatically after every second sentence. The speech model is provided by a female speaking the dialect of English associated with television network newscasters. The Teaching Assistant accommodates a 16mm filmstrip cartridge and a 1/4-inch 8-track audiotape

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[1]The degree to which sentence repetition can be used as a basis for evaluating oral language production has been investigated utilizing the Gloria and David Test. See Diana Natalicio and Frederick Williams, Repetition as an Oral Language Assessment Technique. Center for Communications Research, School of Communications, The University of Texas at Austin, 1971.

cartridge which recorded the children's responses for later scoring.[1]

For purposes of this study, responses were dubbed on 7-inch 4-track audio tape. This procedure, by allowing for immediate playback not possible with the cartridge tapes, facilitated the scoring procedure. Appendix A contains the forty sentences comprising the test. Consisting of 610 phonemes and 58 consonant clusters, the instrument includes all of the sounds of English with the exception of /ǰ/ as in "judge," /ž/ as in "television," /aw/ as in "cow" and /ɔy/ as in "boy."[2]

Spelling Test

The spelling instrument consisted of fifteen words selected from The Gloria and David Oral English test based upon two criteria:

(1) A count was made of pronunciation differences from the model, by phoneme, for both groups combined. When a word contained a total number

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[1]For a complete description of test administration, see Ibid., pp. 15-17.

[2]Ibid., p. 7.

of differences of 10 percent or more, the word qualified for inclusion. Since some children omitted words during the assessment, the 10 percent was based upon the total number of children who attempted the word; and

(2) The presence of a feature which previously published research indicated as being pronounced with a high frequency of divergence for Negro and white residents of the region.

This second criterion was added when it was determined from an examination of the assessments that many words had a pronunciation difference of ten percent or more and the resultant spelling test would be too lengthy for one administration. The original list contained twenty words and was pilot tested with a group of second graders not included in either group and representing the highest and lowest achieving students, as determined by the second grade faculty, in a lower middle-class school in Austin. Observation of the children during the testing session indicated that restlessness and inattention began to develop after approximately ten minutes of testing. Several words, their, toothbrush, and clothes, produced

misunderstandings on the part of the children so it was decided to eliminate these words from the test. Table 4 contains the words and the sentence protocols.

The Gloria and David Oral English test was examined to locate the most naturally sounding rendition, in isolation, for each of the targeted words. Inflection was the important criterion, and whenever possible the word was chosen from final position in a sentence. Each word was edited out of the assessment master tape, as were the sentence protocols, and the word in isolation was placed before and after the sentence protocol. The pauses between the isolated word and the sentence were standardized throughout the test. The final test was recorded on 8-track audio tape for use with the Teaching Assistant.

The words were checked with The New Iowa Spelling Scale and A Spoken Word Count.[1]

Table 5 contains the percentage of success in spelling each of the words by the sample comprising the Green study, and, in the case of the Wepman study, the

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[1]Harry A. Green, The New Iowa Spelling Scale, State University of Iowa, 1954; Joseph M. Wepman, A Spoken Word Count, Chicago, Language Research Associates, 1969.

TABLE 4

WORDS AND SENTENCE PROTOCOLS, 1971

1. Mother--Mother washes David's neck--Mother.
2. washes--She washes his ears--washes.
3. Gloria--Gloria takes a bath--Gloria.
4. helps--Mother helps Gloria--helps.
5. brush--He cleans his teeth with his brush--brush.
6. with--She cleans her teeth with her brush--with.
7. the--The light is not on--the.
8. leg--Baby has a sock on his leg--leg.
9. breakfast--The family eats breakfast--breakfast.
10. drink--Gloria and David drink milk--drink.
11. hands--The children wash their hands--hands.
12. teeth--They brush their teeth--teeth.
13. gets--Gloria gets a little coat--gets.
14. little--David gets a little coat--little.
15. children--The children don't play today--children.

TABLE 5

COMPARISON OF SPELLING WORDS WITH THE GREEN STUDY

AND THE WEPMAN STUDY

	Green--% of Success, Third Grade	Wepman--Age of Occurrence
mother	79	5
washes	41 (wash)	5 (wash)
Gloria	19 (glory)	-
helps	40	5 (help)
brush	19	-
with	54	5
the	95	5
leg	42	5
breakfast	6	5
drink	35	5
hands	47	5 (hand)
teeth	30	7
gets	53	7
little	65	5
children	20	5

age of occurrence of the word in his sample of five, six and seven year old children who responded orally to an adaptation of the TAT.[1]

All of the children participating in the study received instruction in spelling every week. All classrooms participating used Basic Goals in Spelling, Sequence A, Grade 2, copyright 1968, as the basis for the program.[2] Appendix B contains the replies from eleven of the thirteen teachers to questions asked regarding spelling and reading instruction in their classrooms. Spelling instruction ranged from 50 minutes to approximately 150 minutes a week in Austin and from 100 minutes to 150 minutes in San Antonio. There was an indication that the teacher role varied with apparently differing amounts of time spent in direct instruction. Table 6 contains the occurrence of the fifteen words and relevant phoneme/grapheme relationships in Basic Goals in Spelling for grades

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[1]Green collected his data in early Fall. Since this study was undertaken during the Spring, it was felt that the third grade percentages, as reported in Table 5 would be more accurate.

[2]William Kottmeyer and Audrey Claus, Basic Goals in Spelling, Webster Division, McGraw-Hill Book Company, New York, 1968.

TABLE 6

OCCURRENCE OF WORDS AND PHONEME/GRAPHEME RELATIONSHIPS OF INTEREST IN BASIC GOALS IN SPELLING SEQUENCE A, GRADES ONE AND TWO, 1971*

	Grade One	Grade Two	Phoneme/Grapheme Relationships
mother	x	x	
washes	-	wash	/z/ - s
Gloria	-	-	
helps	x	x	
brush	-	-	/br/ - br; /š/ - sh in final position
with	x	x	
the	x	x	
leg	-	-	/e/ - e
breakfast	-	-	/br/ - br; /k/ - k in final position
drink	-	-	/dr/ - dr
hands	-	-	/z/ - s
teeth	-	-	/θ/ - th in final position
gets	-	get	/s/ - s
little	x	x	
children	-	-	/dr/ - dr in initial position

*x denotes occurrence of word
- denotes nonoccurrence of word

one and two. It was not possible to ascertain the amount of time devoted to oral language and writing activities as part of the total language arts program.

Testing and Collection of Data

The phonological assessment was administered to the pupils during late February and early March, 1971. The library was used in both San Antonio schools as the site for the testing. Each assessment was recorded individually on the 8-track audio cartridges and later copied on 4-track 7-inch reel tapes. In Austin, the location for the assessment varied from school to school. In all cases, the locations were empty classrooms or media rooms free from distraction. Each assessment was recorded directly onto 4-track 7-inch audio tapes. In both Austin and San Antonio, several monitors were constantly, but unobtrusively, observing the quality of the testing. However, in a number of cases the quality of the recording made scoring difficult. In addition, a number of children in San Antonio were not recorded due to a monitor's failure to push the "record" button. It was possible to reassess fourteen of these children.

The spelling test was administered in the thirteen classrooms to the entire class with tests for those children not participating separated and put aside. The Teaching Assistant was utilized for administration without using the video capability of the machine. The children supplied their own pencils and the schools supplied the paper. Explanation of the task was as consistent as the "classroom climate" would permit. Directions were invariant, and in all cases given by the author who tried to create a warm but business-like atmosphere. In some classrooms the teacher elected to remain during the testing session. No questions were to be answered once the test began and none was asked by the children. The machine was turned off after the second utterance of each word for a period of thirty seconds. In the case of several words--the, Mother, gets, with--observation indicated that thirty seconds was more than sufficient and, in these cases, testing continued when it was obvious that all children had attempted the word. During all testing sessions an assistant was present. The testing session, from arrival in the room to departure, averaged approximately twenty minutes.

The phenomenon of "looking on" other papers occurred with some children in all classrooms. In these

situations, the test administrator reminded the children that they were to look only at their own papers and to look at the test administrator when they had finished. In several situations, the assistant reduced the problem by standing near the child.

Scoring

A graduate student at The University of Texas at Austin scored all assessments from both groups with the exception of the fourteen reassessments from San Antonio. Trained in phonetics and familiar with the regional dialect, he had considerable experience teaching English to foreign students enrolled at the University. The International Phonetic Alphabet was used for transcription. When the quality of recording was marginal, many final position phonemes were difficult to score accurately. When this occurred, a decision was made whether or not to keep the child in the sample. A total score was obtained by adding together all of the deviations for each child.

Reported reliabilities in studies utilizing speech transcriptions range from none to extensive.[1] To

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[1]Aukin Ting, Richard L. Venezky, Robin S. Chapman and Robert C. Calfee, Phonetic Transcription: A Study

eliminate variation among raters, some studies have used one rater.[1] When several transcribers are utilized, obtaining a high interjudge reliability coefficient may attest to the convergent nature of a training program rather than accurately stating consistency and accuracy. Factors associated with high agreement among transcribers include hearing, training in phonetics, familiarity with the speech to be transcribed, and degree of detail required.[2]

A measure of scorer consistency was obtained for the graduate student who scored all but fourteen of the assessments. Two weeks after the scoring was completed three assessments were selected by the author as representing the range of frequency of pronunciation differences. These were scored again and two comparisons were made--accuracy in recognizing a difference and accuracy in describing it. The results were as follows:

Recognition	.90
Description	.85

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of Transcriber Variation, Technical Report No. 122, Research and Development Center for Cognitive Learning, University of Wisconsin, March, 1970, p. 1.

[2]Mildred C. Templin, Certain Language Skills in Children, Minneapolis: University of Minnesota Press, 1957.

[3]Ting and others, p. 2.

It was not possible to obtain a measure of consistency for the evaluator from Language Arts Inc. who scored fourteen of the assessments; however, his experience scoring oral assessments of Negro children was extensive.

A measure of interscorer accuracy for recognition and description was obtained by having the evaluator from Language Arts Inc. independently score the three assessments used for the consistency check. The results were as follows:

Recognition	.85
Description	.75

It was decided that the interscorer accuracy was sufficiently high for purposes of this study.

The spelling instrument was scored by the author in nine categories, the first three dealing with entire words and the final six dealing with graphemes:

1. Omission--No attempt made; space skipped or left blank.
2. Irrational word--An attempt made but no grapheme was correct by position. For example, rgat for helps.

3. Wrong word--An attempt made with at least one grapheme correct by position. For example, laet for leg.

4. Rational substitution--The substitution of one grapheme for another, the substituted grapheme being a realization for the phoneme. For example, muther for mother. If the pupil's phonological assessment indicated a dialect influence, for example, /eɪ/ for /e/ in leg, the letter a in lage was scored in this category.

5. Irrational substitution--The substitution of one grapheme for another, the substituted grapheme not occurring in English as a realization of the phoneme. For example, geny for gets.

6. Rational addition--The addition of a grapheme representing a sound not otherwise represented graphemically in the word. For example, littel for little and the e in lage, Category 4 above.

7. Irrational addition--The addition of a grapheme not representing a sound in the word. For example, lheg for leg.

8. Rational omission--The omission of a grapheme not necessary for representation of a phoneme

comprising the word. This occurred with the vowel diagraphs and double consonants. The omission of "silent e" was also scored in this category. For example, brekfast and littl. If the phonological assessment indicated the 's' in gets was omitted, omission of the grapheme was scored in this category.

9. Irrational omission--The omission of a grapheme necessary for representation of a phoneme comprising the word. For example, dink for drink.

In order for a word to be scored on the basis of rational and irrational, it had to have one grapheme correct by position. Each word was scored for all Ss at one time. For example, mother was scored for all, then washes and so on. Capital letters were not considered in the scoring.

The spelling instrument was also scored on the basis of correct grapheme/phoneme correspondence for the sixty-nine phonemes represented in the test. For this score, omitted and irrational words were included--the number of graphemes in the omitted word were subtracted from the total possible score of sixty-nine.

Specific phoneme/grapheme relationships were selected for analysis rather than attempting to deal with

all of the data collected in the assssment and the spelling test. Table 7 contains these for each word. In all cases except brush, Gloria and drink the phonemes selected for analysis were mispronounced with a frequency of ten percent or more for pupils in both groups who attempted the word. Because of difficulties involved in accurately scoring the vowels in some of the words on the assessment, only /e/ in leg and /ɛ/ in gets and breakfast were selected for analysis.

The following categories were used for classifying the phonological and the graphic realization of the sound:

1. Correct--Pronounced in conformance with the model; orthographic realization correct.
2. Omission--Phoneme omitted in the pronunciation; orthographic realization omitted. The most frequent divergent pronunciations, the most frequent graphemic realizations. These categories may not appear in all cases.
3. Transposition--Reversal of adjacent sounds; reversal of adjacent letters.
4. Omission of word--Word omitted during assessment; orthographic realization omitted or irrational.

TABLE 7

PHONEME-GRAPHEME RELATIONSHIPS SELECTED

FOR ANALYSIS, 1971

mother	helps	the	breakfast	gets
washes	helps	leg	drink	gets
washes	brush	breakfast	drink	little
Gloria	brush	breakfast	hands	children
Gloria	with	breakfast	teeth	children

5. Other--A low frequency deviation for either the phoneme or the grapheme(s).

Analyses of the Data

All statistical computations were performed using the Control Data Corporation Model 6600 computer at the University of Texas at Austin. Analyses were done utilizing the Edstat V Library as well as programs written for this project.[1]

To answer the question of how the groups compared on the variables of race, age, sex, phonological differences and spelling deviations, two 2 by 2 by 2 fixed-effects analysis of variance were performed using Program AVAR 23. In the first analysis, the phonological score was the dependent variable; in the second, the phoneme/grapheme correspondence spelling score. To determine the nature of the relationship between the phonological score and the spelling score, the Pearson Product-Moment Correlation coefficient was calculated. Comparisons among

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[1]Donald J. Veldman, "Edstat V, Basic Statistical Computer Programs for the CDC 6600," R and D Center for Teacher Education, The University of Texas at Austin, Third Revision, Mimeo.; Also, Donald J. Veldman, Fortran Programming for the Behavioral Sciences, New York; Holt Rinehart, and Winston, 1967.

phonological score means were made using Duncan's New Multiple Range Test.

To answer the question of how the groups compared on the variables of race, age, sex, omitted and irrational words, the 2 by 2 by 2 fixed-effects model was used for two analyses with omitted words and irrational words as dependent variables.

The types, rational and irrational, of spelling deviations were determined for each group based upon the within group total number of deviations. Comparisons between groups were made using a test of proportions.[1]

A test of proportions was used to determine the degree of differences among the selected phonological differences and spelling deviations within and between samples. Comparisons between samples were made within modes; within sample comparisons were made between modes.

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[1]N. M. Downie and R. W. Heath, Basic Statistical Methods, New York: Harper and Row, 1965.

C H A P T E R I V

ANALYSES OF DATA

Question One

The first question, how do the groups compare on the variables of race, sex, age, phonological differences and spelling deviations, was answered using a 2 by 2 by 2 fixed-effects model analysis of variance. Descriptive statistical information for the variables was provided by Program Distat of the Edstat V Library. An examination of the age distribution of the children indicated a near normal distribution with the median falling slightly above the mean.

Two analyses were performed with the dependent variable in the first being the phonological score. The dependent variable in the second analysis was the grapheme/phoneme correspondence spelling score. Program AVAR 23 of the Edstat V Library was utilized for these analyses because of its ability to handle unequal cell N's. The results of these analyses are found in Tables 8 and 10.

With the phonological score as the dependent variable, race was found to be the only significant main

TABLE 8

RACE BY AGE BY SEX FIXED-EFFECTS ANALYSIS OF VARIANCE WITH PHONOLOGICAL SCORE AS THE DEPENDENT VARIABLE FOR A GROUP OF 62 NEGRO PUPILS (SAN ANTONIO) AND 72 WHITE PUPILS (AUSTIN), 1971

Source	df	MS	F	P
Race (A)	1	10519.675	116.182	.0000
Age (B)	1	12.347	.136	.7138
Sex (C)	1	135.995	1.502	.2203
A × B	1	84.852	.937	.6636
A × C	1	108.224	1.195	.2758
B × C	1	1680.652	18.562	.0001
A × B × C	1	963.042	10.6361	.0018
Within	126	90.545		
Total	133	187.319		

TABLE 9

COMPARISONS OF PHONOLOGICAL SCORE MEANS

FOR A GROUP OF 62 NEGRO PUPILS (SAN ANTONIO)

AND A GROUP OF 72 WHITE PUPILS (AUSTIN), 1971

	Male		Female	
	Below Age Mean	Above Age Mean	Below Age Mean	Above Age Mean
White	9.7059 n = 17	6.9375 n = 16	7.2222 n = 18	8.4762 n = 21
Negro	33.5333 n = 15	23.0500 n = 20	16.9000 n = 10	31.8824 n = 17

6.94 7.72 8.48 9.71 16.90 23.05 31.88 33.53

The underlined means are not significantly different at the .05 level.

TABLE 10

RACE BY AGE BY SEX FIXED-EFFECTS ANALYSIS OF VARIANCE WITH SPELLING SCORE AS THE DEPENDENT VARIABLE FOR A GROUP OF 62 NEGRO PUPILS (SAN ANTONIO) AND 72 WHITE PUPILS (AUSTIN), 1971

Source	df	MS	F	P
Race (A)	1	11000.372	43.3199	.0000
Age (B)	1	239.894	.944	.6657
Sex (C)	1	472.739	1.862	.1714
A × B	1	.584	.002	.3608
A × C	1	476.652	1.877	.1696
B × C	1	6.831	.027	.8644
A × B × C	1	355.927	1.402	.2368
Within	126			
Total	133			

effect. The Negro pupils had a much higher frequency of deviation from the model than did the white children.

The interaction of age and sex was highly significant. Males in both groups who were in the age group below the mean had more phonological deviations than did males who were above the mean. Females in both groups who were in the age group below the mean had fewer deviations than did females who were above the mean. Deviations decreased with age for the males and increased with age for the females. The second order interaction race by age by sex was significant. Table 9 contains the phonological score means for the eight cells in the analysis. Duncan's New Multiple Range Test, modified for unequal cell entries, was used to compare the eight means. Table 9 contains these comparisons.

Of the four white groups, below and above the mean age males and females, none had significantly different mean scores. Of the four Negro groups, females above the mean age and males below the mean age were not significantly different; neither were females below the mean age and males above the mean age. Females below the mean age had a significantly lower mean score than males below and females above the mean age.

With race, age and sex as independent variables, the second analysis indicated a significant difference for the race variable with the spelling score as the dependent variable. As explained in Chapter 3, this score was determined on the basis of correct spellings for the sixty-nine phonemes comprising the test.

The analyses thus far have dealt with the total phonological score and the total spelling score as dependent variables. To determine the degree of relationship between phonological score and spelling score for both Negro and white children, a correlational analysis was performed with the spelling score as the dependent variable. The results were as follows:

Negro	-.3965	$p < .01$
White	-.3634	$p < .01$

The negative correlation resulted from the scoring methods used--a high phonological score indicated many differences from the model and a high spelling score indicated few grapheme/phoneme deviations. These correlation coefficients reflect a positive relationship between the two variables. For the Negro pupils the phonological score accounted for approximately 13 percent of the variation

in the spelling scores. For the white pupils the phonological score accounted for approximately 16 percent of the variation.

Question Two

The spelling score used in this analysis provided a measure of grapheme/phoneme correspondence. The analysis included children who omitted one or more words or whose attempts were irrational. To answer the second question of the relationships among race, age, sex and omitted and irrational words, a 2 by 2 by 2 fixed-effects model was used with word omission and irrational words, in turn, as dependent variables. The results of these analyses are found in Tables 11 and 12. A significant difference for the race variable was found for both word categories. Negro children omitted more words and had more irrational realizations than did white children. The significant race by sex interaction with omitted words as the dependent variable was the result of the greater omission in the Negro group by males, and a somewhat greater omission of words in the white group by females.

TABLE 11

RACE BY AGE BY SEX FIXED-EFFECTS ANALYSIS OF VARIANCE, WITH OMITTED WORDS AS THE DEPENDENT VARIABLE FOR A GROUP OF 62 NEGRO PUPILS (SAN ANTONIO) AND 72 WHITE PUPILS (AUSTIN, TEXAS) 1971

Source	df	MS	F	P
Race (A)	1	88.793	14.403	.0005
Age (B)	1	.130	.021	.8797
Sex (C)	1	18.854	3.058	.0790
A × B	1	3.726	.604	.5555
A × C	1	27.530	4.465	.0343
B × C	1	.503	.082	.7726
A × B × C	1	.301	.0488	.8201
Within	126	6.165		
Total	133	6.892		

TABLE 12

RACY BY AGE BY SEX FIXED-EFFECTS ANALYSIS OF VARIANCE WITH IRRATIONAL WORDS AS THE DEPENDENT VARIABLE FOR A GROUP OF 62 NEGRO PUPILS (SAN ANTONIO) AND 72 WHITE PUPILS (AUSTIN), 1971

Source	df	MS	F	P
Race (A)	1	91.205	18.8705	.0001
Age (B)	1	2.340	.4841	.5051
Sex (C)	1	1.138	.2356	.6339
A × B	1	.575	.1189	.7308
A × C	1	.059	.0123	.9082
B × C	1	.004	.0008	.9762
A × B × C	1	3.486	.7419	.6050
Within	126	4.833		
Total	133	5.322		

Question Three

Omitted and irrational words were excluded from the analysis of the types (rational and irrational) of spelling deviations. In order for a word to be scored in the categories of rational and irrational substitution, addition, and omission, one grapheme had to be correct by position. Since the Negro children had a greater number of omitted and irrational words their chances for obtaining a deviation score in the categories was less than for white children.

The procedure selected for determining types of errors was to obtain for each group the percentages of the total errors for the group in each of the six categories. In addition, the scores in the substitution, addition and omission categories were summed to obtain a total rational deviation score and a total irrational deviation score. The percentages for each category were compared between groups and differences reaching the .05 level of significance or greater were determined using a test of proportions. Table 13 contains the percentages and the results of the statistical test.

Of all the deviations for the white pupils, approximately half were rational and half irrational. The

TABLE 13

PERCENTAGES AND SIGNIFICANCES OF TOTAL NUMBER OF ERRORS IN CATEGORIES OF RATIONAL AND IRRATIONAL SUBSTITUTION, ADDITION AND OMISSION FOR A GROUP OF 62 NEGRO PUPILS (SAN ANTONIO) AND 72 WHITE PUPILS (AUSTIN), 1971

Type of Error	White % N = 950	p_{R/I_r}	Negro % N = 895	p_{R/I_r}	p
Rational Substitution	32		14		<.05
Irrational Substitution	14		21		n.s.
Rational Addition	7		5		n.s.
Irrational Addition	4		6		n.s.
Rational Omission	8		5		n.s.
Irrational Omission	35		49		n.s.
	100		100		
Total Rational Deviations	47	n.s.	25	<.001	<.01
Total Irrational Deviations	53		75		<.01
	100		100		

Negro pupils had three times as many irrational as rational deviations. The most frequent type of deviation was grapheme omission with the category of irrational omission contributing the majority of the errors. Substitution was the second most frequent category of deviation with the white pupils contributing the majority of the rational deviations and the Negro pupils contributing more irrational deviations than the white pupils. The reader should note the fact that intrasubject performance was not considered in this method of scoring and group performance may have been confounded by individual performance.

Questions Four and Five

Because of time limitations, it was decided to select for analysis, from the vast amount of data generated in this study, specific phoneme/grapheme relationships within each of the fifteen words rather than attempting an analysis of all correspondences. Selection was based, in the majority of cases upon a ten percent pronunciation difference for all children in both samples who attempted the word.[1]

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[1]Word selection procedures were described in Chapter 3; for brush, Gloria, and drink, the criteria of

Table 14 contains the twenty-five selected correspondences. A test of proportions was performed to determine statistical significance of the differences between samples. The percentages of significant differences between samples for the 237 comparisons are shown below.

n.s.	n	.05	n	.01	n	.001	n
.658	156	.105	25	.089	21	.148	35

It can be seen that, while differences in oral and written performance existed, over 65 percent of these differences were not statistically significant.

Figure 1 shows graphically the percentages correct for the oral production of the twenty-five phonemes. Figure 2 shows the percentages correct for the written realization of the twenty-five phonemes. The lines connecting the percentage points were added to improve readability. A comparison of the two figures shows an overall closer relationship between the two groups for oral production than for the written realization of this production. With the exception of /br/ and /dr/ the white

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ten percent pronunciation differences for all phonemes within the word combined was met; individually, the phonemes selected for analysis did not meet the ten percent criteria.

TABLE 14

TWENTY-FIVE SELECTED PHONEME/GRAPHEME CORRESPONDENCES WITH TESTS OF SIGNIFICANCE WITHIN GROUPS FOR ORAL AND WRITTEN AND BETWEEN GROUPS COMPARISONS OF ORAL WITH ORAL AND WRITTEN WITH WRITTEN, 62 NEGRO PUPILS (SAN ANTONIO) AND 72 WHITE PUPILS (AUSTIN), 1971

E X P L A N A T I O N

Word	Mode	p_1	White (N=72)	Percent	$p_{o/w}$ White	$p_{o/w}$ Negro	Negro (N=62)	Percent	p_1	p_2
Mother	Oral	n.s.	Correct	99			Correct	85	.01	
			Omission of Word	1			/d/ sub.	13	.01	
							/v/ sub.	2	n.s.	
	Written		Correct	100	n.s.	n.s.	Correct	85	.01	
							Omission	5	n.s.	
							Omission of Word	3	n.s.	
							Other	6	n.s.	

Significance levels are reported on the right of the Table under p_1 when both samples contained a percentage in a particular category. p_2 reflects change resulting when "Omission of word" category was removed and percentages were based upon those who attempted the word. When one sample contained a category that did not occur in the other sample a test of proportions was performed comparing the reported percentage with zero. In the case of the white sample these values are reported on the left of the Table. Probability values reported between the two samples adjacent to the "Correct" category for the Written indicates the significance of a test of proportions comparing percentages within samples of oral correct with written correct. These appear in the center of the table under $p_{o/w}$ White and $p_{o/w}$ Negro.

Word	Mode	p_1	White (N=72)	Percent	$p_{o/w}$ White	$p_{o/w}$ Negro	Negro (N=62)	Percent	p_1	p_2
Mother	Oral	n.s.	Correct	99			Correct	85	.01	
			Omission of Word	1			/d/ sub.	13	.01	
							/v/ sub.	2	n.s.	
	Written		Correct	100	n.s.	n.s.	Correct	85	.01	
							Omission	5	n.s.	
							Omission of Word	3	n.s.	
							Other	6	n.s.	
washes	Oral		Correct	93			Correct	87	n.s.	
			/s/ sub.	3			/s/ sub.	5	n.s.	
			/č/ sub.	1			/č/ sub.	6	n.s.	
			Omission of Word	1			Omission of Word	2	n.s.	
	Written		Correct	88	n.s.	.01	Correct	63	.01	.01
			Omission	1			Omission	6	n.s.	n.s.
			s sub.	3			s sub.	5	n.s.	
			ch sub.	1			ch sub.	2	n.s.	
							Transposition	2	n.s.	
			Omission of Word	7			Omission of Word	19	n.s.	
							Other	3	n.s.	

Word	Mode	p_1	White (N=72)	Percent	$p_{o/w}$ White	$p_{o/w}$ Negro	Negro (N=62)	Percent	p_1	p_2
washes	Oral		Correct	99			Correct	89	n.s.	
			Omission of Word	1			Omission	10	.05	
							Omission of Word	2	n.s.	
	Written		Correct	39	.001	.001	Correct	13	.001	
			Omission	15			Omission	55	.001	
			e omission	37			e omission	13	.001	
			Omission of Word	7			Omission of Word	19	n.s.	
		n.s.	Other	1						
Gloria	Oral	n.s.	Correct	99			Correct	98	n.s.	
			Vowel before /l/	1			/l/ omission	2	n.s.	
	Written		Correct	72	.001	.001	Correct	24	.001	.01
			Omission	4			Omission	10	n.s.	.05
			Vowel before l	7			Vowel before l	3	n.s.	
			l omission	8			l omission	11	n.s.	
		n.s.	Substitution for G	4						
			Omission of Word	3			Omission of Word	48	.001	
			Other	1			Other	4	n.s.	

Word	Mode	p_1	White (N=72)	Percent	$p_{o/w}$ White	$p_{o/w}$ Negro	Negro (N=62)	Percent	p_1	p_2
Gloria	Oral	n.s.	Correct	99			Correct	82	.01	
			/w/ sub.	1			Omission	18	.01	
	Written	.01	Correct	81	.01	.001	Correct	37	.001	n.s.
			w sub.	16			Omission	13	.01	
			Omission of Word	3			Omission of Word	48	.001	
							Other	2	n.s.	
helps	Oral	n.s.	Correct	72			Correct	55	.05	
			Omission	7			Omission	15	n.s.	
			/w/ sub.	7						
			/ə/ sub.	13			/ə/ sub.	26	.05	
			Omission of Word	1			Omission of Word	5	n.s.	
	Written	n.s.	Correct	86	.05	n.s.	Correct	65	.05	n.s.
			Omission	3			Omission	15	n.s.	.05
			Transposition	7						
			Omission of Word	4			Omission of Word	21	.05	

Word	Mode	p_1	White (N=72)	Percent	$p_{o/w}$ White	$p_{o/w}$ Negro	Negro (N=62)	Percent	p_1	p_2
helps	Oral		Correct	97			Correct	81	.05	
			Omission	1			Omission	15	.05	
			Omission of Word	1			Omission of Word	5	n.s.	
	Written		Correct	92	n.s.	.001	Correct	27	.001	
			Omission	4			Omission	52	.001	
			Omission of Word	4			Omission of Word	21	.05	
brush	Oral	n.s.	Correct	96			Correct	98	n.s.	
		n.s.	Vowel before /r/	1			Other	2	n.s.	
		n.s.	/r/ omission	1						
		n.s.	Omission of Word	1						
	Written		Correct	79	.05	.001	Correct	35	.001	.01
			Vowel before r	3			Vowel before r	5	n.s.	.01
		n.s.	r omission	11			r omission	24	n.s.	
			d for b	1						
			Omission of Word	4			Omission of Word	35	.001	
		n.s.	Other	1						

Word	Mode	p_1	White (N=72)	Percent	$p_{o/w}$ White	$p_{o/w}$ Negro	Negro (N=62)	Percent	p_1	p_2
brush	Oral	n.s.	Correct	99			Correct	94	n.s.	
			Omission	1			/č/ for /š/	3	n.s.	
							/ś/ omission	2	n.s.	
							Other	2	n.s.	
	Written	.05	Correct	71	.001	.001	Correct	34	.001	.05
			Omission	1			Omission	13	.05	.01
			c for s	10			c for s	3	.05	
			s omission	3			s omission	15	n.s.	.01
			h omission	10						
		n.s.	Omission of Word	4			Omission of Word	35	.001	
			Other	1						
with	Oral	n.s.	Correct	97			Correct	69	.001	
			Other	3			Omission	8	n.s.	
							/d/ sub.	21	.01	
							Omission of Word	2	n.s.	
	Written		Correct	88	n.s.	n.s.	Correct	53	.001	.05
			Omission	3			Omission	8	n.s.	
			h omission	7			h omission	11	n.s.	
							d sub.	2	n.s.	
			Omission of Word	1			Omission of Word	23	.01	
			Other	1			Other	3	n.s.	

Word	Mode	p_1	White (N=72)	Percent	$p_{o/w}$ White	$p_{o/w}$ Negro	Negro (N=62)	Percent	p_1	p_2
the	Oral		Correct	96			Correct	81	.05	
							Omission	2	n.s.	
			/d/ sub.	4			/d/ sub.	18	.05	
	Written		Correct	100	n.s.	n.s.	Correct	82	.01	n.s.
							d sub.	3	n.s.	
							Omission of Word	15	.05	
leg	Oral		Correct	75			Correct	63	n.s.	
			/ɛɪ/ sub.	24			/eɪ/ sub.	13	n.s.	
							/i/ sub.	19	.01	
			Omission of Word	1			Omission of Word	5	n.s.	
	Written		Correct	76	n.s.	n.s.	Correct	63	n.s.	
			a sub.	19			a sub.	8	.05	
			Omission of Word	1			Omission of Word	23	.01	
			Other	3			Other	6	n.s.	

Word	Mode	p_1	White (N=72)	Percent	$p_{o/w}$ White	$p_{o/w}$ Negro	Negro (N=62)	Percent	p_1	p_2
			Correct	100			Correct	90	n.s.	
	Oral						/r/ omission	4	n.s.	
							Omission of Word	3	n.s.	
							Other	3	n.s.	
breakfast										
			Correct	74	.001	.001	Correct	29	.001	
							Omission	2	n.s.	
	Written		Vowel plus r	3			Vowel plus r	6	n.s.	
			r omission	19			r omission	31	n.s.	.001
			Omission of Word	3			Omission of Word	32	.001	
		n.s.	Other	1						
			Correct	96			Correct	90	n.s.	
	Oral		Other	3			Other	7	n.s.	
							Omission of Word	3	n.s.	
breakfast										
			Correct	17	.001	.001	Correct	15	n.s.	
		.05	Omission	11						
			a sub.	29			a sub.	19	n.s.	
	Written		e sub.	32			e sub.	16	.05	n.s.
			Other vowel	6			Other vowel	6	n.s.	
		n.s.	Transposition	3						
			Omission of Word	3			Omission of Word	32	.001	

Word	Mode	p_1	White (N=72)	Percent	$p_{o/w}$ White	$p_{o/w}$ Negro	Negro (N=62)	Percent	p_1	p_2
breakfast	Oral		Correct	88			Correct	81	n.s.	
			Omission	12			Omission	16	n.s.	
							Omission of Word	3	n.s.	
	Written	n.s.	Correct	33	.001	.001	Correct	23	n.s.	
			Omission	46			Omission	39	n.s.	
			c sub.	3			c sub.	2	n.s.	
			t sub.	1			t sub.	2	n.s.	
		n.s.	c before k	8						
		n.s.	Transposition	1						
			Omission of Word	3			Omission of Word	32	.001	
			Other	4			Other	3	n.s.	
breakfast	Oral		Correct	67			Correct	20	.001	
			Omission	3			Omission	3	n.s.	
			/t/ omitted	29			/t/ omitted	73	.001	
			/s/ omitted	1			/s/ omitted	2	n.s.	
							Omission of Word	3	n.s.	
	Written	n.s.	Correct	67	n.s.	n.s.	Correct	31	.001	.01
			Omission	14			Omission	21	n.s.	.05
			t omission	6			t omission	8	n.s.	
			s omission	10			s omission	5	n.s.	
		n.s.	Transposition	1						
			Omission of Word	3			Omission of Word	32	.001	
							Other	3	n.s.	

Word	Mode	p_1	White (N=72)	Percent	$p_{o/w}$ White	$p_{o/w}$ Negro	Negro (N=62)	Percent	p_1	p_2
			Correct	97			Correct	98	n.s.	
	Oral	n.s.	Omission of Word	2			Vowel plus /r/	2	n.s.	
		n.s.	Other	1						
drink										
			Correct	67	.001	.001	Correct	34	.001	n.s.
							Omission	3	n.s.	
			Vowel before r	4			Vowel before r	3	n.s.	
	Written		r omission	6			r omission	13	n.s.	.01
			b for d	10			b for d	2	.001	
			Omission of Word	7			Omission of Word	44	.001	
			Other	6			Other	2	n.s.	
			Correct	100			Correct	92	n.s.	
	Oral						/k/ omitted	8	n.s.	
drink										
			Correct	36	.001	.001	Correct	24	n.s.	
							Omission	6	n.s.	.05
			n omission	53			n omission	16	.001	
	Written		c before k	(11)*			c before k	(2)*	.001	
			k omission	3			k omission	3	n.s.	
			Omission of Word	7			Omission of Word	44	.001	
							Other	5	n.s.	

*This 11% is also represented in the 53% figure due to a computational error.

Word	Mode	p_1	White (N=72)	Percent	$p_{o/w}$ White	$p_{o/w}$ Negro	Negro (N=62)	Percent	p_1	p_2
hands	Oral		Correct	97			Correct	90	n.s.	
			Omission	3			Omission	6	n.s.	
							Omission of Word	3	n.s.	
	Written	n.s.	Correct	85	.05	.001	Correct	40	.001	
			Omission	1			Omission	34	.001	
			d omission	8			d omission	2	n.s.	
			z sub.	1						
			Omission of Word	4			Omission of Word	24	.01	
teeth	Oral	n.s.	Correct	97			Correct	82	.05	
			/f/ sub.	3			/t/ sub.	2	n.s.	
							/t/ omission	2	n.s.	
							/f/ sub.	10		
							Other	5	n.s.	
	Written		Correct	85	n.s.	.001	Correct	42	.001	
			Omission	3			Omission	11	n.s.	
			h omission	3			h omission	8	n.s.	
			t omission	3			t omission	5	n.s.	
			f sub.	3			f sub.	3	n.s.	
			Omission of Word	1			Omission of Word	24	.01	
			Other	3			Other	6	n.s.	

Word	Mode	p_1	White (N=72)	Percent	$p_{o/w}$ White	$p_{o/w}$ Negro	Negro (N=62)	Percent	p_1	p_2
gets	Oral		Correct	28			Correct	42	n.s.	
			/ɪ/ sub.	72			/ɪ/ sub.	58	n.s.	
	Written	n.s.	Correct	82	.001	.01	Correct	69	n.s.	
			i sub.	4			Omission	2	n.s.	
			Other vowel	6			Other vowel	6	n.s.	
			Omission of Word	7			Omission of Word	23	.05	
			Other	1						
gets	Oral		Correct	100			Correct	87	.05	
							Omission	13	.05	
	Written	n.s.	Correct	88	.05	.001	Correct	44	.01	.001
			Omission	3			Omission	34	.001	
			Transposition	3						
			Omission of Word	7			Omission of Word	23	.05	

Word	Mode	p_1	White (N=72)	Percent	$p_{o/w}$ White	$p_{o/w}$ Negro	Negro (N=62)	Percent	p_1	p_2
			Correct	44			Correct	34	n.s.	
		n.s.	Vowel before /l/	4						
	Oral		/əw/ sub.	42			/əw/ sub.	24	.05	
			/ə/ sub.	9			/ə/ sub.	42	.001	
		n.s.	Omission of word	1						
little										
			Correct	69	.01	.01	Correct	61	n.s.	
			Omission	7			Omission	10	n.s.	
	Written		Vowel before l	18			Vowel before l	8	.05	
			Vowel no l	3			Vowel no l	5	n.s.	
			Omission of Word	1			Omission of Word	15	.05	
			Other	1			Other	2	n.s.	

Word	Mode	p_1	White (N=72)	Percent	$p_{o/w}$ White	$p_{o/w}$ Negro	Negro (N=62)	Percent	p_1	p_2
			Correct	68			Correct	58	n.s.	
			Omission	7			Omission	23	.01	
	Oral						/r/ sub.	2	n.s.	
			/əw/ sub.	18			/əw/ sub.	2	.001	
			/ə/ sub.	7			/ə/ sub.	15	n.s.	
							Omission	2	n.s.	
children										
			Correct	58	n.s.	.01	Correct	32	.01	.05
			Omission	32			Omission	40	n.s.	.05
	Written	n.s.	r sub.	1						
			w sub.	1			w sub.	2	n.s.	
			Omission of Word	4			Omission of Word	26	.01	
		n.s.	Other	3						
			Correct	97			Correct	87	n.s.	
	Oral		Omission	1			Omission	8	n.s.	
		n.s.	Vowel before /r/	1			Omission of Word	2	n.s.	
							Other	3	n.s.	
children										
			Correct	39	.001	.001	Correct	19	.01	.05
	Written		Omission	44			Omission	47	n.s.	.05
			Vowel before r	13			Vowel before r	8	n.s.	
			Omission of Word	4			Omission of Word	26	.01	

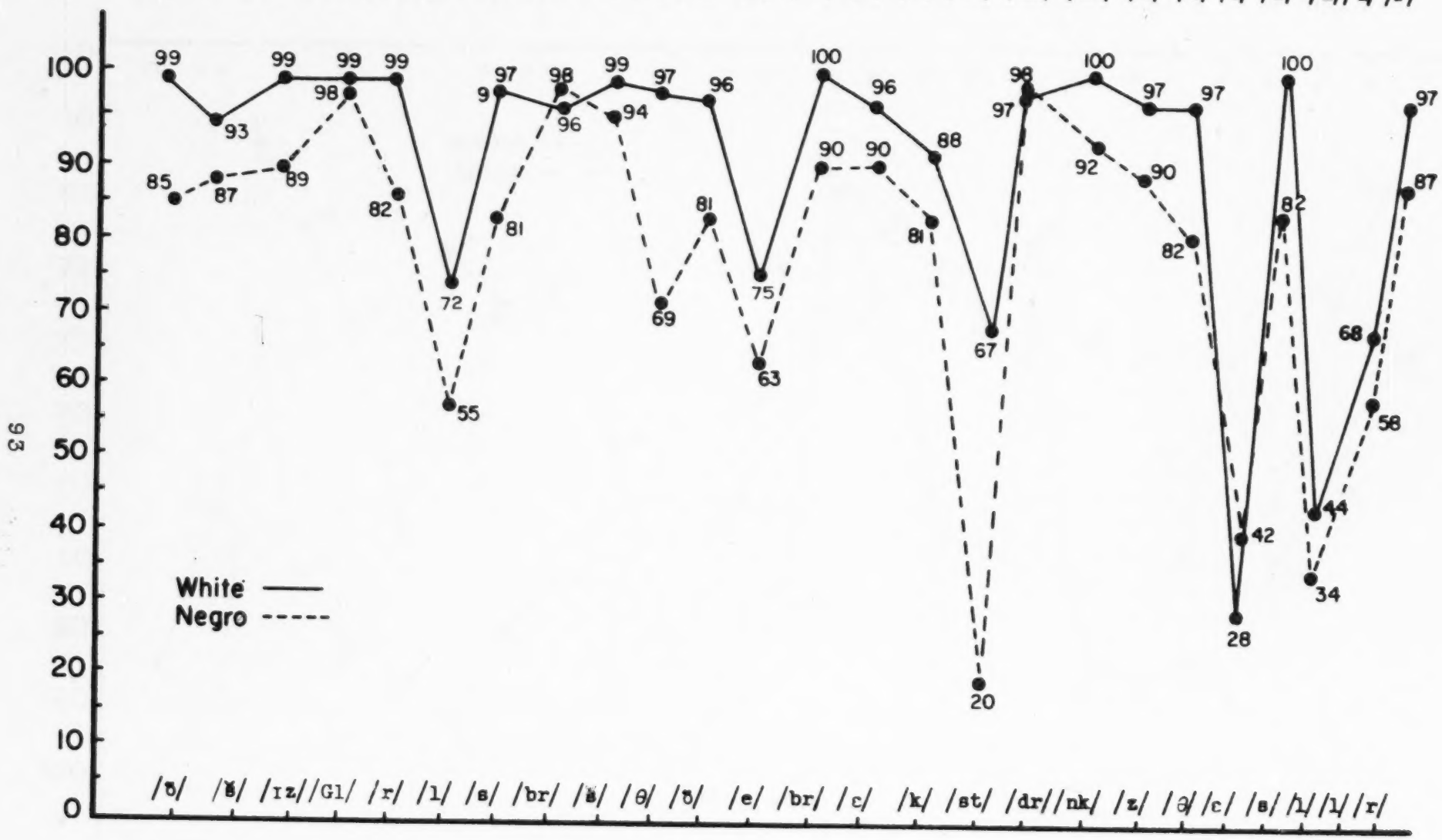

Figure 1. PERCENTAGES CORRECT-ORAL, FOR A SAMPLE OF 62 NEGRO PUPILS (SAN ANTONIO) AND 72 WHITE PUPILS (AUSTIN), 1971.

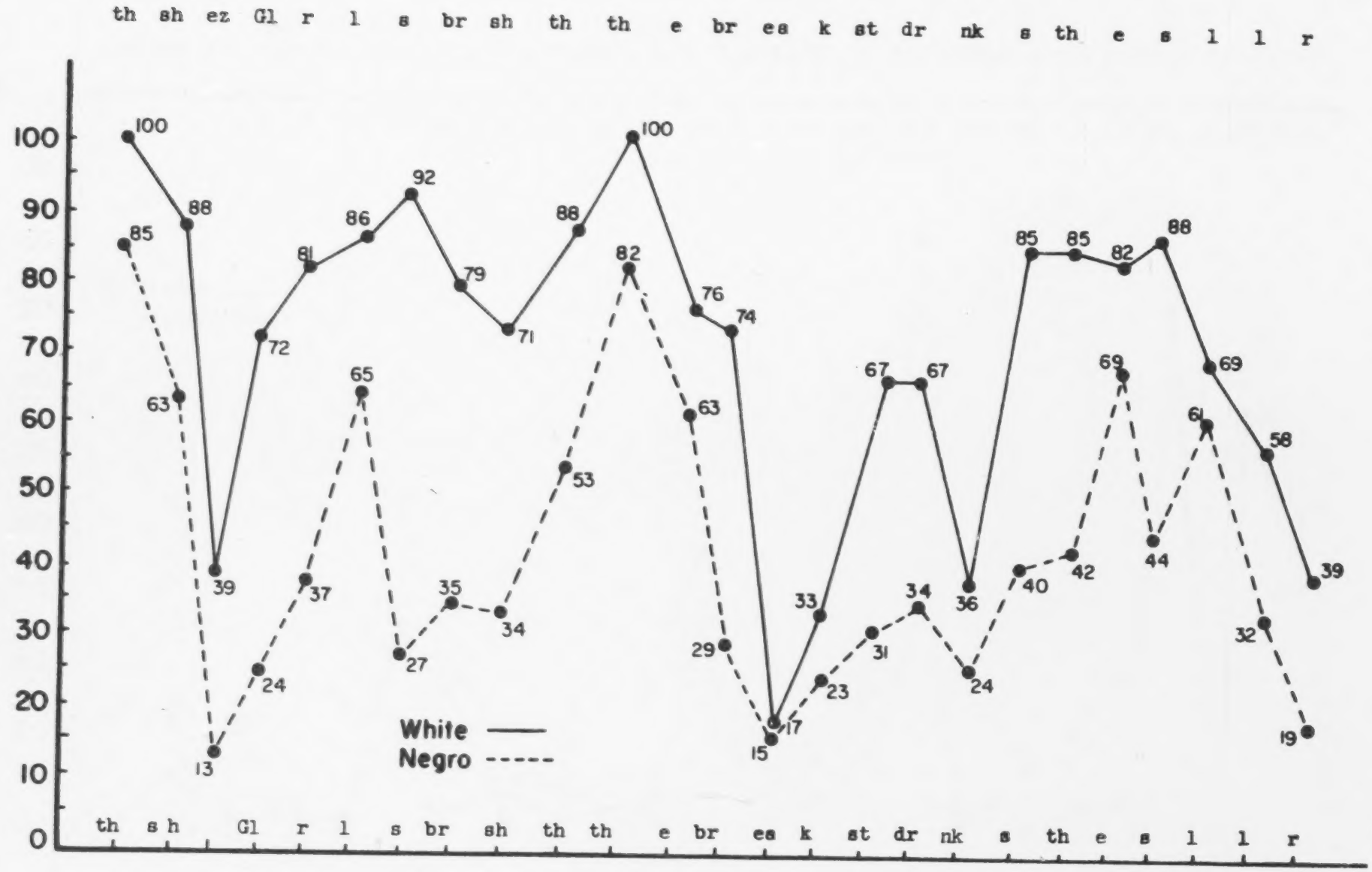
th sh ez Gl r l s br sh th th e br es k st dr nk s th e s l l r
100
90
80
70
60
50
40
30
20
10
0
White
Negro
th sh Gl r l s br sh th th e br es k st dr nk s th e s l l r

Figure 2. PERCENTAGES CORRECT-WRITTEN FOR A SAMPLE OF 62 NEGRO PUPILS (SAN ANTONIO) AND 72 WHITE PUPILS (AUSTIN), 1971.

children had greater oral percentages correct for 23 of the 25 features; /br/ and /dr/ had nonsignificant percentages favoring the Negro children. Significant differences existed for /θ/ in final position, /st/ in final position, intervocalic /r/, /ð/ in initial and medial positions, /s/ in final position, /l/ in medial position. The overall patterning of differences was similar with differences in magnitude accounting for the significant differences.

While less pronounced, Figure 2 indicates an overall spelling deviation pattern having a degree of similarity. The greatest differences between the groups occurred with es, s, sh, br, dr, Gl, intervocalic r, voiceless th in final position, st, r in the dr cluster, and l in final syllabic position before the voiced consonant d . For every word except Mother the Negro pupils had a significantly higher percentage of omitted and irrational words. Figure 3 is a between group comparison of the written realization with percentages based upon the number who had one correct grapheme per word rather than the total group, "nonspellers" of words included. Significant changes are indicated under p_2. A comparison of Figures 2 and 3 indicates significant percentage changes between groups for Gl, r, l, br, s, th, st,

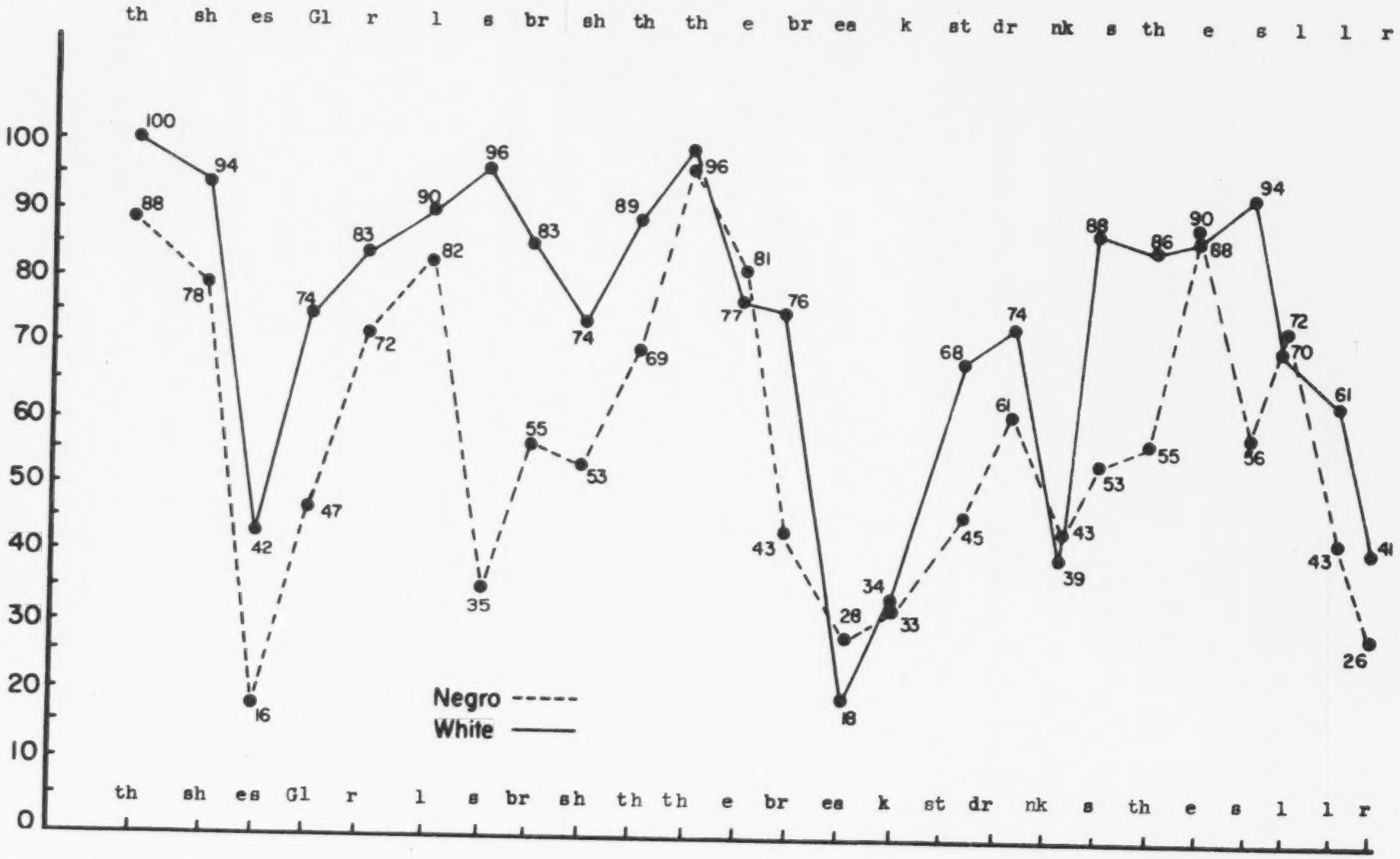

Figure 3. PERCENTAGE CORRECT-WRITTEN WITH OMITTED AND IRRATIONAL WORDS NOT INCLUDED.

dr, l and r in children. For e in leg, ea in breakfast, nk in drink, e in gets and l in little the Negro pupils had a greater percentage correct than did the white pupils. These differences were not significant.

Figures 4 and 5 show the oral and written percentages correct within groups. Table 15 contains the significant differences within groups. They are listed according to mode favored by the difference.

The consistent pattern of omission of graphemic realizations for final sibilants was observed in the Negro group. With the exception of /z/ in hands, final sibilants were also omitted significantly more frequently orally for the Negro pupils. The oral pattern of raising /ɛ/ to /ɪ/ in gets, a dialectal feature, occurred with high frequency in both groups. The percentages correct in both groups for the written realization of /ɛ/ was significantly higher.

The omission of n in the nk cluster occurred with significantly higher frequency for the white children. The nk cluster did not occur in the subjects' first or second grade spelling program. While this might be a possible explanation, Read's suggestion that place of articulation is a stronger determinant of the written

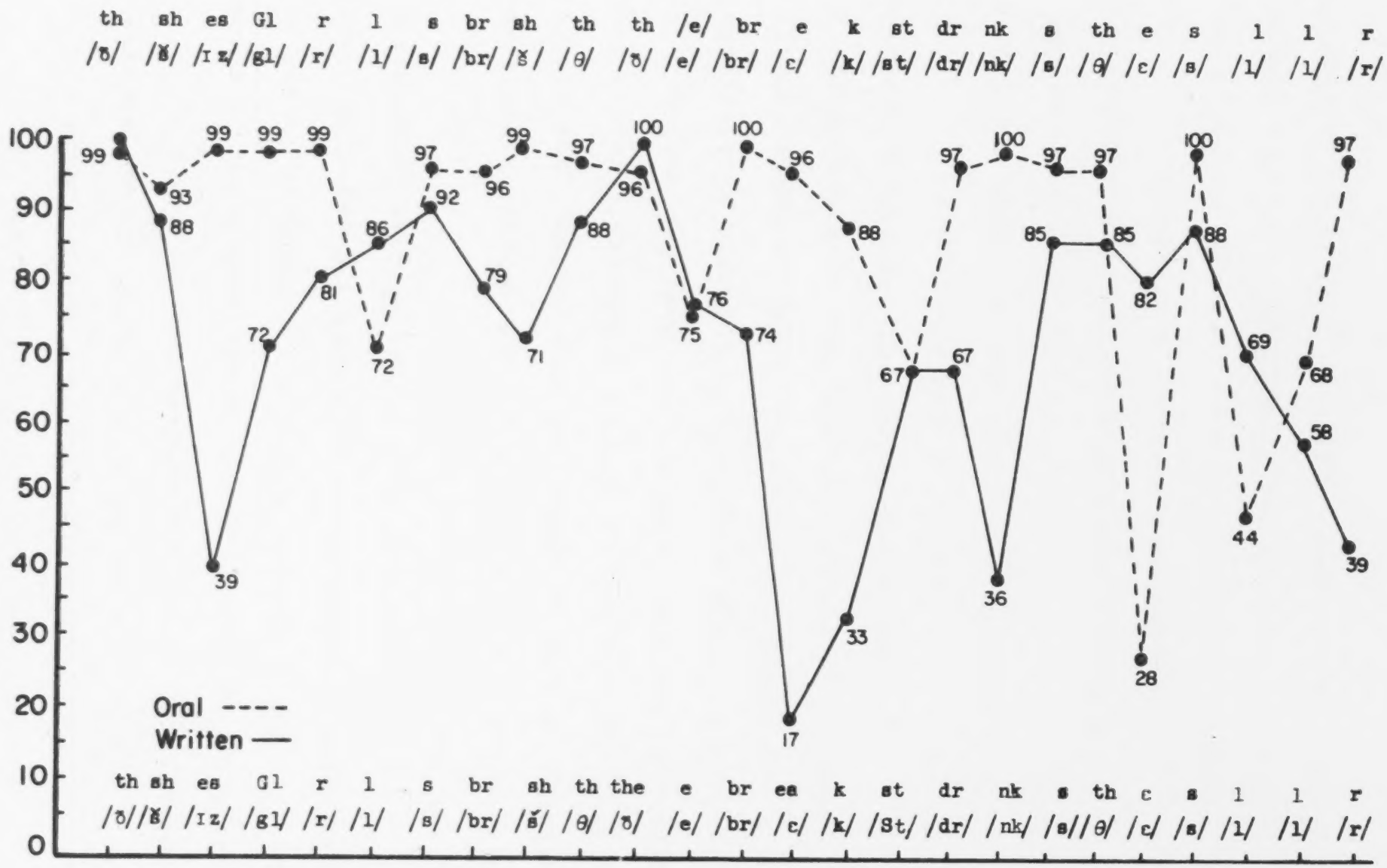
th sh es Gl r l s br sh th th /e/ br e k st dr nk s th e s l l r
/ð/ /š/ /ɪz/ /gl/ /r/ /l/ /s/ /br/ /š/ /θ/ /ð/ /e/ /br/ /ɛ/ /k/ /st/ /dr/ /nk/ /s/ /θ/ /ɛ/ /s/ /l/ /l/ /r/
100
90
80
70
60
50
40
30
20
10
0
Oral ----
Written ——
th sh es Gl r l s br sh th the e br ea k st dr nk s th c s l l r
/ð//š/ /ɪz/ /gl/ /r/ /l/ /s/ /br/ /š/ /θ/ /ð/ /e/ /br/ /ɛ/ /k/ /St/ /dr/ /nk/ /s//θ/ /ɛ/ /s/ /l/ /l/ /r/

Figure 4. PERCENTAGE CORRECT, ORAL AND WRITTEN--72 WHITE PUPILS (AUSTIN), 1971.

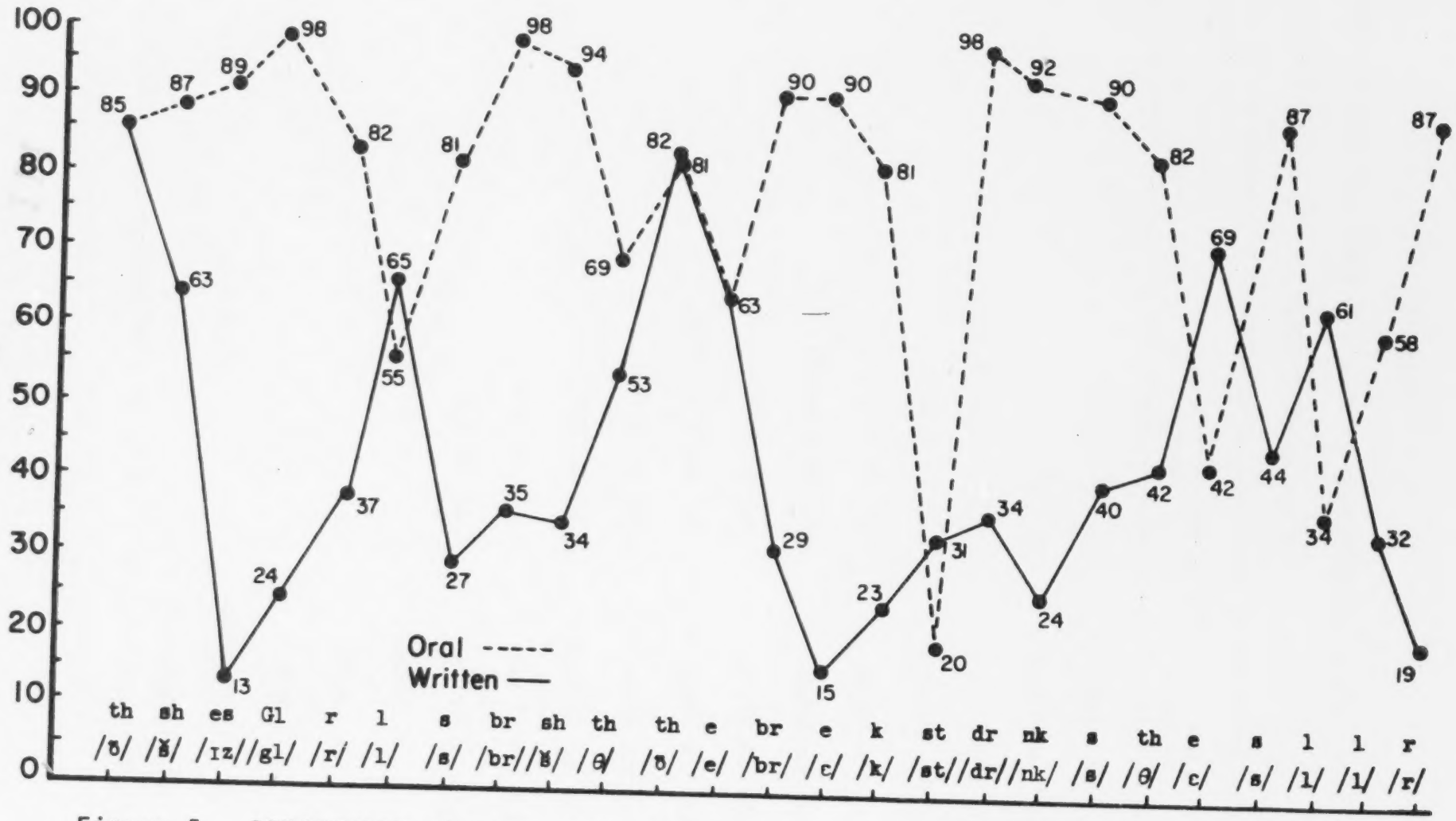

Figure 5. PERCENTAGE CORRECT, ORAL AND WRITTEN--62 NEGRO PUPILS (SAN ANTONIO), 1971.

TABLE 15

SIGNIFICANT DIFFERENCES BY MODE FOR ORAL AND WRITTEN PRODUCTION WITHIN GROUPS FOR 62 NEGRO PUPILS AND 72 WHITE PUPILS, 1971

Oral		Written	
Negro	White	Negro	White
/ s/ in washes	/ɪz/ in washes	/ɛ/ in gets	/l/ in helps
/ɪz/ in washes	/gl/ in Gloria	/l/ in little	/ɛ/ in gets
/gl/ in Gloria	/ r/ in Gloria		/l/ in little
/ r/ in Gloria	/br/ in brush		
/ s/ in helps	/ š/ in brush		
/br/ in brush	/br/ in breakfast		
/ š/ in brush	/ ɛ/ in breakfast		
/br/ in breakfast	/ k/ in breakfast		
/ ɛ/ in breakfast	/dr/ in drink		
/ k/ in breakfast	/ŋ k/ in drink		
/dr/ in drink	/ z/ in hands		
/ŋk/ in drink	/ s/ in gets		
/ z/ in hands	/ r/ in children		
/ θ/ in teeth			
/ s/ in gets			
/ l/ in children			
/ r/ in children			

realization than nasality can be considered a plausible explanation.[1] The low frequency of n omission by the Negro Ss may reflect a dialectal "consciousness" for pre-consonantal nasals in final position clusters. It is a characteristic of Negro dialect to omit orally the final sound in a cluster occurring in final position when the consonants are either both voiced or voiceless. In the nk cluster the k is a voiceless stop; however, for the Negro Ss, nasality may be as strong, or stronger, a determinant for the written realization as place of articulation.

The occurrence of /i/ in leg occurred orally significantly more often with the Negro children. With both groups the percentages correct for the written realization of /ɛ/ and /e/ were significantly higher than the percentage correct for oral production. In helps, /l/ in medial position had a greater frequency of pronunciation difference than graphemic difference for both groups. In syllabic final position, /l/ was pronounced correctly more frequently for both groups but the written realization had a lower frequency of occurrence,

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[1]Read, op. cit.

significantly so for the Negro pupils. The high frequency of pronunciation difference for st among Negro pupils was due to the omission of the voiceless stop. Differences did not occur for the final /k/ in drink to any extent. There was some evidence of a glottel stop in little for Ss in both groups. Scoring this proved to be difficult. The off gliding of /e/ to a lengthened /eɪ/ in leg, a characteristic of a number of adult speakers both Negro and white in the region occurred more frequently with the white children.

The substitution of /i/ for /e/ in leg occurred with 19 percent of the Negro pupils. This did not occur with any of the white pupils.

While not included among the selected features for analysis, several pronunciation differences occurred in both samples which are characteristic of many speakers of the region. These included a tendency, greater among Negro children to alter the dipthong /ai/ in cries to /a/, the raising of /ɔ/ in on to /o/, and the lowering of /i/ to /e/ and /ɪ/ in drink for a number of Negro pupils. Because of scoring difficulties, this last feature was not included among the features for analysis.

It was observed during the scoring of the assessments that many Negro pupils improved in their ability to

imitate the model as they proceeded through the task. This was not observed to occur for the white pupils. The substitution of /d/ for /ð/ in initial and medial positions tended to decrease; the substitution of /haev/ for /haez/ decreased for some, whereas others went from /haev/ to /haevz/. The occasional appearance of /w/ for /r/ and /f/ for /θ/ in final position suggested immature speech which had gone unnoticed by the classroom teacher, since subjects receiving speech attention had been eliminated from the samples after consultation with the classroom teachers.

Summary

Using a 2 by 2 by 2 fixed-effects analysis of variance model with age, race, sex as the independent variables and the phonological score as a dependent variable, a significant difference was observed for the race variable favoring the white pupils. There was a significant interaction of sex and age--older girls in both groups had more pronunciation differences than younger girls while younger boys in both groups had more pronunciation differences than older boys. Using the same statistical model

with the spelling score as the dependent variable a significant difference existed for the race variable favoring the white pupils. A significant positive relationship was found to exist between the phonological and spelling scores for both groups of children.

With omission of words and irrational words as dependent variables and race, age, sex as independent variables a significant difference favoring the white Ss was found with both dependent variables. A significant race by sex interaction with omitted words was observed. Negro males omitted more words than did Negro females while white females omitted more words than white males.

Of all spelling deviations made by the white children approximately half were rational. Negro pupils had three times as many irrational as rational deviations. Grapheme omission was the most frequent type of deviation for both groups followed by substitution and addition.

For the phoneme/grapheme correspondences selected for analysis, 237 comparisons were made between groups. Of these, 66 percent were not significant. Differences were found favoring both groups. For every word except Mother, Negro pupils had a significantly higher percentage of omitted and irrational words. There was

less variation between groups for oral production than for the written realization of this production. This differential was reduced when Ss were removed who omitted words or whose attempt was irrational. Phonological differences occurring with higher frequency for the Negro pupils included substitutions for /θ/ in final position; omission of the voiceless stop in /st/ in final position; omission and substitution for intervocalic /r/; substitution for /ð/ in final position; and distortion of /l/ in medial position. The raising of /ɛ/ to /ɪ/, a dialectal feature of the region, appeared to be more patterned for the Negro Ss appearing with a significant frequency in leg.

The consistent pattern of omission of graphemic realizations for final sibilants was observed among the Negro children. Other differences included omission of l in final syllabic position before the voiced consonant d and omission of r in the dr and br clusters. The Negro Ss had a greater percentage correct than the white Ss for n in the nk cluster, the e in gets, the e in leg, and the l in little.

Comparisons of oral with written production within groups indicated that the significant differences, in the majority of cases, favored oral production; however,

for several features including /l/ in helps there was a higher percentage correct for the written realization. This occurred in both groups.

C H A P T E R V

SUMMARY, LIMITATIONS, CONCLUSIONS AND RECOMMENDATIONS

Summary

This study compares oral language production with the written realization of this production for a group of white and a group of Negro second graders attending public schools in Austin and San Antonio, Texas respectively.

The dearth of empirical information focusing on the relationships between these two aspects of language behavior prompted the development of a research design that would answer questions relating to the variables of race, age, sex, phonological differences and spelling deviations.

Oral language production was assessed using the Gloria and David Oral English test, an individually administered audiovisual repetition task. The Ss responded to a female speaking the dialect of American English associated with television network newscasters.

Children were selected from all second grade classrooms in five participating schools--eight classrooms in San Antonio and five in Austin. A minimum of ten children were randomly selected from each classroom providing a group of 100 children in San Antonio and 95 in Austin. Due to the poor quality of recordings for some children, the decision to eliminate children with diagnosed speech problems and absences the day of the spelling test, the final group consisted of 72 white children and 62 Negro children.

The spelling test consisted of fifteen words selected from the phonological assessment according to the criteria of (1) a total number of pronunciation differences of 10 percent or more for all subjects in both groups who attempted the word and (2) the word contained a feature previously published research indicated as being pronounced with a high frequency of divergence for groups of Negro and white residents of the region. The words were administered to an entire class at one time using the voice, words, and sentence protocols from the assessment.

Scoring of the tests was accomplished in two ways. First, a count was made of grapheme correspondences for the sixty-nine phonemes comprising the test. This

score included graphemes in omitted and irrational realizations as incorrect graphemes. Second, the tests were also scored on the basis of rational and irrational grapheme/phoneme correspondences with omitted and irrational words excluded from the analysis.

Due to the sizeable amount of data and limitations of time, phoneme/grapheme correspondences for twenty-five features were analyzed rather than attempting an exhaustive treatment of the data. Selection of features for analysis was based, in the majority of cases, upon a 10 percent pronunciation difference for the phoneme for Ss in both samples combined.

Using a 2 by 2 by 2 fixed-effects analysis of variance model with race, age, and sex as independent variables and the total phonological score as the dependent variable, a significant difference was observed favoring the white pupils. There was a significant interaction of age and sex; older girls in both groups had more pronunciation differences than younger girls while older boys in both groups had fewer differences than younger boys.

Using the same statistical model with the spelling score as the dependent variable, a significant difference existed for the variable of race. A significant

positive relationship was found to exist between the phonological and spelling scores for both groups.

The Negro pupils omitted significantly more words and had significantly more irrational words than did the white pupils. An analysis of the kinds of errors indicated that approximately half of the white pupils' deviations were rational and half were irrational. The Negro pupils had three times as many irrational deviations as rational deviations.

For the 25 phoneme/grapheme correspondences selected for analysis, 237 comparisons were made between groups. Of these 66 percent were not significant. Differences were found favoring whites in some cases, Negroes in others. For every word except Mother the Negro children had a significantly higher percentage of omitted and irrational words. There was less variation between groups for oral production than for the written realization of phoneme production. Phonological differences occurring with higher frequency for the Negro pupils included substitution for /θ/ in final position; omission of /ɪz/ and /s/ in final position; omission of the voiceless stop /t/ in final position; omission and substitution for intervocalic /r/; and substitution for /ð/ in initial and medial positions.

The consistent pattern of omission of graphemic realizations for final sibilants was observed in the Negro group. The Negro children had a greater percentage correct than the white children for the n in nk cluster, the e in gets, the e in leg, the l in little.

Comparisons of oral with written production within groups indicated that the significant differences, in the majority of cases, favored the oral production; however for several features including /l/ in helps, there was a higher percentage correct for the written realization. This occurred in both groups.

Limitations of the Study

Subjects, Instrumentation and Testing Procedures.

A large number of subjects chosen in the original group were eliminated due to the quality of the oral language assessment, absence on the day of testing and the decision to eliminate children with diagnosed speech difficulties. It was not possible to determine if these factors biased the groups participating in the study. However, with the exception of absences, none of the factors would appear to be directly related to the variables under

discussion. Choosing children on the basis of a minimum criterion of spelling ability would have better served the purposes of this study since it was difficult to ascertain relationships with a high frequency of nonrespondents for a number of words.

A measure of overall verbal ability would have allowed for an investigation of ability as measured by a standardized instrument and oral and written production. It would have been of interest to compare the results of a measure designed to predict success with actual performance on a school-related task.

While it was desired to have a range of difficulty incorporated into the spelling test, the number of difficult words may have had a negative motivational effect upon the poorer spellers in both groups, contributing to the omission of words. The frequency of omission, however, was not the same for both groups suggesting other factors were contributing to the differential.

While the phenomena of "looking on" other papers was observed, an examination of papers of pupils participating in this activity did not indicate widespread copying. This problem could have been eliminated through individual testing; however, the time factor prohibited this procedure.

Instructional Aspects. Appendix B contains information supplied by the classroom teachers regarding the amount of time devoted to spelling instruction; also, an indication of time devoted to instruction in phoneme/grapheme relationships was provided. It was not possible to obtain a measure of "spelling consciousness" on the part of the pupils or the emphasis on accurate spelling in the daily programs for such activities as creative writing. The classroom spelling "climate" with its attendant motivational aspects could well have affected the outcomes. The amount of time spent in remedial work dealing with sound/symbol relationships was not ascertainable.

Socioeconomic Factors. Socioeconomic measures having a degree of preciseness such as family income, educational level of the parents, pattern of family lifestyles were not available. An examination of the occupational information contained on the school records indicated substantial differences between the two groups. It must be kept in mind therefore, that the participants differed on a variable research has indicated to be highly related to school success. The findings of this study would have been more meaningful in terms of the relationships between this variable and those used in the study if a more precise measure had been available.

Generalizability of the Findings. The procedure of having children spell words for which a measure of oral production was available, a departure from other studies of this type, may have unduly suppressed the phonological variable, due in large measure to the content of the spelling test. The one-time occurrence of many features in difficult words may have allowed variables other than those under consideration to operate, affecting production in ways difficult to pinpoint with any assurance of accuracy.

Conclusions

Based on the findings of this study, and in light of the foregoing limitations, the following conclusions can be drawn:

(1) The white second graders who participated in this study were better able to produce the dialect of English presented by the model than were the Negro second graders.

(2) Pronunciation differences which existed for the Negro pupils included those that existed for the white pupils. The overall patterning of differences was similar with differences between the

the groups due to the differential frequency with which they occurred.

(3) As evidenced by the trend toward accurate production of the dialect of English presented by the model, a number of Negro pupils had the production capability for many dialect features of standard English.

(4) The overall spelling performance of the white pupils was more rational than that of the Negro pupils; however, the white pupils had approximately as many irrational as rational deviations. As has been suggested by others researching spelling behavior the number of variant realizations appearing on spelling tests is, in part, a function of the number of Ss taking the test. While this study was not able to confirm or deny this observation, apparently variables other than race, sex, age, and oral language production contributed to the variation in spelling performance.

(5) Negro females were better spellers than were Negro males; findings for the sex variable in the white group were not conclusive.

(6) The relationship that existed between phonological differences and spelling deviations for certain correspondences suggested that certain oral language characteristics including dialect features did affect spelling in predictable ways to a greater degree for Negro pupils than for white pupils. The high frequency of oral and written omission of final sibilants, l before d, and r following d confirmed this relationship; however the frequent oral omission of the stop in /st/ was not reflected in the spelling. Substitutions such as /f/ for /θ/ in final position and /d/ for /ð/ in medial position were not reflected in the written realization.

Recommendations

(1) Refine the spelling instrument to include several occurrences of each feature of interest. Several testing sessions would probably be required.

(2) With individual administration of the spelling test using a headset-microphone combination have the pupils repeat the word just prior to spelling

it and encourage the children to vocalize their attempted spellings.

(3) Obtain a measure of auditory and visual discrimination to provide a measure of abilities which are important aspects of spelling behavior.

(4) Obtain a measure of oral language production in addition to the sentence repetition task; perhaps a casual free speech situation would allow for an analysis of spelling behavior with possibly a more complete measure of the range of oral language possessed by the children.

The findings of this research suggest that educators concerned with developing meaningful language arts programs for children should make ample provision for activities centered upon the primary modes of speaking and listening. Since language behavior is a situational phenomena, teachers must provide many opportunities for practicing a variety of speech patterns, in order that the child become aware of language contexts and acquire the competencies necessary for successfully functioning in these contexts.

Language arts programs developed for wide distribution, e.g., prepackaged spelling materials, should

be used with discretion by teachers of all children and especially by teachers whose pupils speak a dialect of English that differs from the one upon which the materials were based.

The use of the corrected test technique should be an integral part of spelling programs for all children. This technique would be especially valuable as a means of focusing attention in a nonpunitive fashion upon those aspects of words needed in writing which might cause correctness problems for dialect speakers.

A P P E N D I X A

GLORIA AND DAVID ORAL ENGLISH TEST

GLORIA AND DAVID ORAL ENGLISH TEST*

Name _____ Age _____ Grade _____ School _____ City _____

1. Mother washes David's neck.
   She washes his ears.
2. Gloria takes a bath.
   She has the soap.
3. Gloria washes her hair.
   She has soap on her head.
4. Gloria cries.
   The soap is in her eyes.
5. Soap is on her nose.
   Mother helps Gloria.
6. David has a toothbrush.
   He cleans his teeth with his brush.
7. Gloria has a toothbrush.
   She cleans her teeth with her brush.
8. David and Gloria are clean.
   They are on their knees.
9. The children go to bed.
   The light is not on.
10. Mother wakes Gloria and David.
    The children wake the baby.

*Adapted from Gloria and David Beginning English Series No. 20 by permission of Language Arts, Inc. 1304 W. 34th Street, Austin, Texas, © 1958.

GLORIA AND DAVID ORAL ENGLISH TEST (con't)

Name Age Grade School City

11.	Gloria and David both get clean clothes.	
	They can dress in their clothes.	
12.	David can button his shirt.	
	Gloria cannot button her dress.	
13.	The socks are on Gloria's feet.	
	Gloria has her shoes.	
14.	Baby has a sock on his leg.	
	He has a shoe on his foot.	
15.	Gloria has a comb for her hair.	
	David has a brush for his hair.	
16.	The family eats breakfast.	
	Gloria and David drink milk.	
17.	The children wash their hands.	
	They brush their teeth.	
18.	Gloria gets a coat.	
	David gets a little coat.	
19.	The children don't play today.	
	Today they go to school.	
20.	Daddy goes to work.	
	Mother works at home.	

A P P E N D I X B

INFORMATION REGARDING SPELLING PROGRAMS

Sutton Hall 2H
The University of Texas at Austin
University Station
Austin, Texas 78712
April 22, 1971

Dear Colleague:

I would appreciate it greatly if you could take a moment to supply the following information. This information will assist me in describing the spelling program in which the children in the study participate.

This information will be used for descriptive purposes only and no reference to a particular class will be made.

1. Approximately how many minutes per week are devoted to spelling instruction? How is this time allocated?

2. What spelling series do you presently use?

3. Approximately how much time is spent on sound-letter relationships during your reading period?

4. Do you see any evidence of dialectal pronunciation is the children's writing?

5. What reading series do you use?

Thanking you for your time, I am

Sincerely yours

Richard E. Sullivan

Richard E. Sullivan

1. Approximately how many minutes per week are devoted to spelling instruction? How is this time allocated?

Austin (White)

a. About three hours per week: ten to fifteen minutes for checking; fifteen minutes for preparation; ten to fifteen minutes for individual work.
b. Approximately fifty minutes a week. "I go over the book instructions with the whole class each morning. Individual instruction follows for those pupils who need extra help understanding the written instructions."
c. One-hundred-fifty minutes a week; thirty minutes a day.
d. Thirty minutes a day.
e. Seventy-five minutes a week--one-half of this time is spent in instruction, the other half in proofreading or checking. The entire seventy-five minutes is spent on one concept such as words that end with er.

San Antonio (Negro)

a. Approximately one-hundred minutes per week.
b. One-hundred-fifty minutes a week--thirty minutes a day.
c. Two and one-half hours, one-hundred-forty minutes a week--one-half hour a day.
d. Thirty minutes a day--one-hundred minutes a week. Students are given different exercises each day. They are to write sentences using their new words. Crossword puzzles are included sometimes. Final spelling and sentence dictation is given.
e. One-hour-forty minutes a week are devoted to spelling instruction.
f. One-hundred-fifty minutes per week, thirty minutes a day. Ten minutes going over exercises orally, ten minutes writing the exercises, ten minutes checking written work.

2. What spelling series do you presently use?

Austin (White)

a. Basic Spelling Goals 2
b. Basic Goals in Spelling--Sequence A, Kottmeyer and Claus
c. Basic Goals in Spelling--Sequence A, Kottmeyer and Claus
d. Basic Goals in Spelling--Sequence A, Kottmeyer and Claus
e. Basic Goals in Spelling--Sequence A, Kottmeyer and Claus

San Antonio (Negro)

a. Basic Goals in Spelling--McGraw-Hill, Sequence A
b. Basic Goals in Spelling--McGraw-Hill, Sequence A
c. Basic Goals in Spelling--McGraw-Hill, Sequence A
d. Basic Goals in Spelling--McGraw-Hill, Sequence A
e. Basic Goals in Spelling--McGraw-Hill, Sequence A
f. Basic Goals in Spelling--McGraw-Hill, Sequence A

3. Approximately how much time is spent on sound-letter relationships during your reading period?

Austin (White)

a. Thirty minutes every other day.
b. Sixty minutes each week.
c. Varies a lot day-to-day and with level of class.
d. Ten minutes a day for each reading group.
e. Ten minutes.

San Antonio (Negro)

a. Twenty minutes of reading period.
b. Fifteen minutes a day.
c. One-third of reading period.
d. Most of reading period, in oral reading and expressions.
e. Seventy-five minutes per week.
f. "Practically all my teaching is spent on sound-letter relationships, because I teach the low group."

4. Do you see any evidence of dialectal pronunciation in the children's writing?

Austin (White)

a. Yes, especially Mexican-American children.
b. Yes, especially Mexican-American children.
c. Very little. "I do not have any Negroes and my Latins are very good at the English language."
d. Yes.
e. No.

San Antonio (Negro)

a. Yes.
b. No. In speech, yes.
c. Yes, frequently.
d. Yes, the limit is few in number but evidence is there, hearing the words and writing another letter sound in its place.
e. No.
f. Yes, particularly in the substitution of the sound of "d" for "th."

5. What reading series do you use?

Austin (White)

a. Scott Foresman.
b. Left this out.
c. Scott, Foresman and Co. (1963) Basic Reader and (1967) Open Highways.
d. Scott, Foresman and Co.
e. Scott, Foresman and Co.

San Antonio (Negro)

a. Scott, Foresman Series
b. Scott, Foresman Series, Curriculum Foundation Series.
c. New Basic Readers, Curriculum Foundation Series.
d. New Basic Readers, Curriculum Foundation Series.
e. New Basic Readers, Curriculum Foundation Series.

A P P E N D I X C

VARIANT SPELLINGS OF FIFTEEN WORDS

VARIANT SPELLINGS OF FIFTEEN WORDS--WHITE SUBJECTS

Mother	whchs	golora	glera
Omissions-1	washash	gloiera	gloru
Irrational-0	shaw	loha	gloreyo
mather-4	wa	glower	glarea
muther		grae	goroe
mothre	Gloria	glerue	gara
maethter	Omissions-2	grlay	glrea
mothe	Irrational-2	calrea	garea
	glorea-9	glorae	giawc
washes	glore-3	glreo	glwea
Omissions-4	glorya-3	glowea	galrea
Irrational-1	glare-2	gloys	
washs-21	glory-2	gorle	helps
wash-5	gorye	cleur	Omissions-2
wash's-3	glow-2	glorie	Irrational-1
washis-2	glowy	glroryu	help's-4
wish-2	ghlre	glor-2	helpes-4
woshs-2	golorela	gowa	halps-3
wrsh	glowro	glureu	help-2
was	glore	gerye	helqsh
wash's	garf	golow	hel
woshes	glearu	gralder	his

hples	bhrush	weth-3	lega
heples	bash	withe-2	lig
hals	base	wath-2	lack
hlep's	bruse	whet	
hilps	bun	wasl	breakfast
hepls	brsch	wieid	Omissions-0
heles	bursh	wite	Irrational-2
hepes	bruos	wheth	breakfast-3
hells	bresh	wha	breckfast-3
helpils	brose	wh	brfest-3
hples	bunch	whit	brakfast-2
hilps	bruns	waet	brekfast-2
hapls	brus		brekfest-2
hlpes	breush	the	burafest-2
	buchis	Omissions-0	brefest-2
brush	bruch	Irrational-0	bathst
Omissions-3	bash		backfast
Irrational-0	bouh	leg	bref
brash-7	bros	Omissions-0	breck
bruch-4	drsh	Irrational-1	brefet
broch-2		lag-9	befft
bush-2	with	lage-2	beafkets
dorush	Omissions-1	laeg	baf
brch	Irrational-0	laege	baer

baesfet
brith
brefft
brec
brackus
bafust
barkfast
brafst
brakfest
bra
brf
brechfust
brukfust
brfeist
brafist
brackest
brefce
breckfost
burkst
brakfus
prekfat
bexfest
breackfast

brekfst
bresfst
beakfust
bredfus
brakste
brifst
brakfost
bafs
befst
buskfut
brkfast
breakfasest
brakfust
basfast
brekfest
breakfirst

drink
Omissions-1
Irrational-4
drek-4
drik-4
drick-4

drak-3
drck-2
doreke
grack
brack
brak
dink-2
brlk
brick
dueck
darik
dirng
drok
durk
dring
trick
grenc
criuk
brik
druck
dregk
druink
druk

bruk
dack
trink
brek
dreik
dreck

hands
Omissions-3
Irrational-0
hans-4
haes-2
hasdz
hads
conds
haids
hand
handes
hacds
cands
haeds

teeth	gets	littil	chinden
Omissions-0	Omissions-3	littke	chintls
Irrational-1	Irrational-2	littl	crick
tooth-5	get's-2	letter	chctecne
teethe-2	gats-2	ltol	carlder
teth-2	gits-2	litt	chailden
theeth-2	gess	litten	childerin
tef-2	gash	lial	cheldren
theth	g	lietl	chled
tuch	got		cherlern
thetet	gi	children	chrldrun
teet	gees	Omissions-2	chiraeh
tetth	get,s	Irrational-1	chwane
tehtne	gest	childen-4	chindern
thee	beas	chelden-2	chdrune
tesh		cilderun	callgen
teoth	little	chenck	chulin
taith	Omissions-1	chibren	chidrin
tethe	Irrational-0	chrusn	cherlee
thooh	littel-10	chiren	codren
taeth	lettle-6	cledin	chinden
teth	litte-3	colund	chieher

cheren

cedludn

ch'lldin

chilren

chillan

chilrs

chedren

cilrn

cheldran

cld

chaien

chidan

chraden

childern

charran

celbrum

chilldren

chelden

chdrin

ch

chirdern

VARIANT SPELLINGS OF FIFTEEN WORDS--NEGRO SUBJECTS

Mother	waih	glow	cor
Omissions-2	washis-3	gare	glorya
Irrational-0	w-3	golreyu	gla-2
mothe-2	washish	co	glnr
moiad	washzs	gosre	
moter	washs-3	goweror	helps
manher	wach	raya	Omissions-5
m	withs	glorir	Irrational-8
morny	wate	gloreya	help-18
mone	whete	gorewy	hlep-4
mtho	waseh	g-3	hleped
maeth	wihs	gluy	hpa
mans	wishs	glra	he-2
mote	washe	glore	hahp
	waht	garer-2	hpent
washes	wis	globe	hleps
Omissions-3		glog	hlp
Irrational-9	Gloria	glorea-2	hep
wash-22	Omissions-10	glreetnl	h
wans	Irrational-20	gart	hlay
wosh	coun	glor	hpys
washing	gale	gloag	heiping

hlays
hlaes
helpys

brush
Omissions-13
Irrational-9
buny
brs-2
beth
bush-8
bros
b-2
busser
borsr
burch
bronhie
bunh
brus-2
boeh
bruh
bretng
bret

busr
bach
brae
bas
bcoh
brus
barsh

with
Omissions-4
Irrational-10
well
w
wanth
whent
we
whit-4
whnet
wite
wint
went
wahe
wede

the
Omissions-1
Irrational-8
de-2

leg
Omissions-9
Irrational-5
lhge
lites
laert
lag-3
lang
l
lae
led
le
lie

breakfast
Omissions-13
Irrational-7
baf

barfst
b-3
betfast
brak
basfast
basket-2
barefart
bertting
breckfast
brafust
browfuner
bufes
bats
bretfest
befash
becf-2
bre
bay
barfrist
brastfast
bietel
fast
brkatfus

brasfast
busfh
bafush
bakie
bast
braestfast
breakfus
brfs
brkfust
brok
befash
bacfast
beakfast

drink
Omissions-15
Irrational-12
dink
dik
drike-2
dits
dinak
doren

druck
divad
drik-3
dr
brind
donk
dirn
bink
drak
ak
drank-2
dre
griok
unk
dink

hands
Omissions-7
Irrational-8
hand-19
henns
haed
ha

h
hard
hask
hans

teeth
Omissions-10
Irrational-5
teas
teay
tant
tooth-4
thoot
theek
tenh
teth
teehe
teeve
teth
teat
theeth-2
thook
tefa

theet-2
thooh
tef

gets
Omissions-10
Irrational-4
get-17
gochs
geting
gasts
g
gat
getting
gas
ghne

little
Omissions-7
Irrational-2
litt-2
lettlea
lettel

littln
lileli
litil
lattle
littke
littlen
lettl
littel-2
lettile
litter
letter
lette
littie
litte
littl
litl

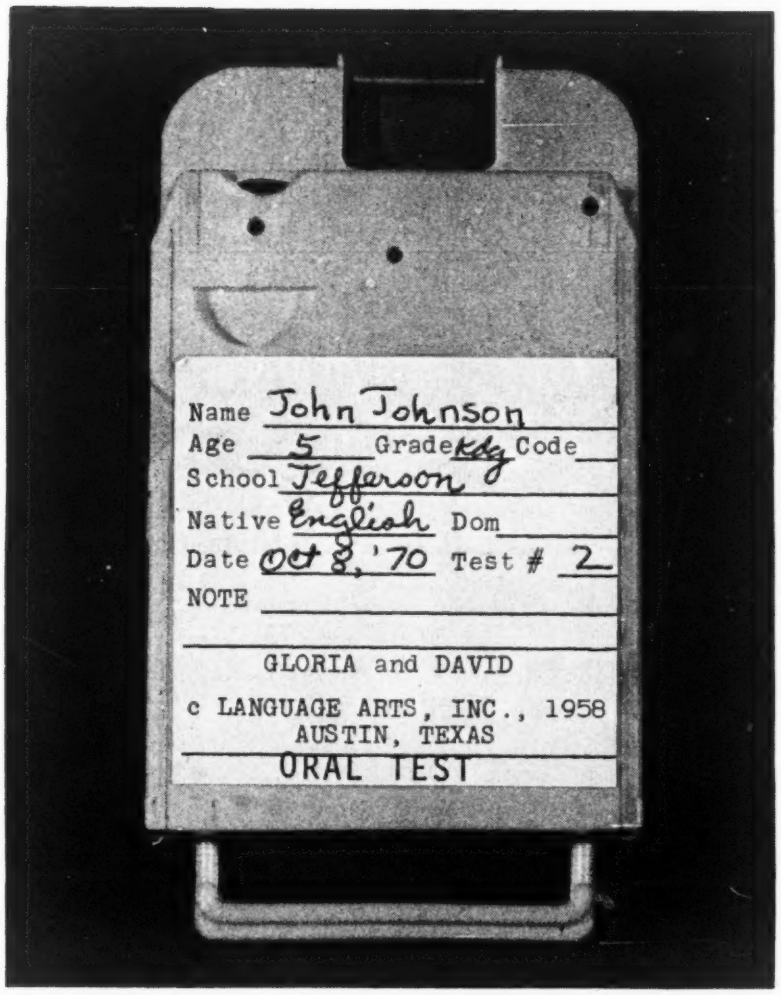
<u>children</u>
Omissions-12
Irrational-4
chils
caeoach
c-3

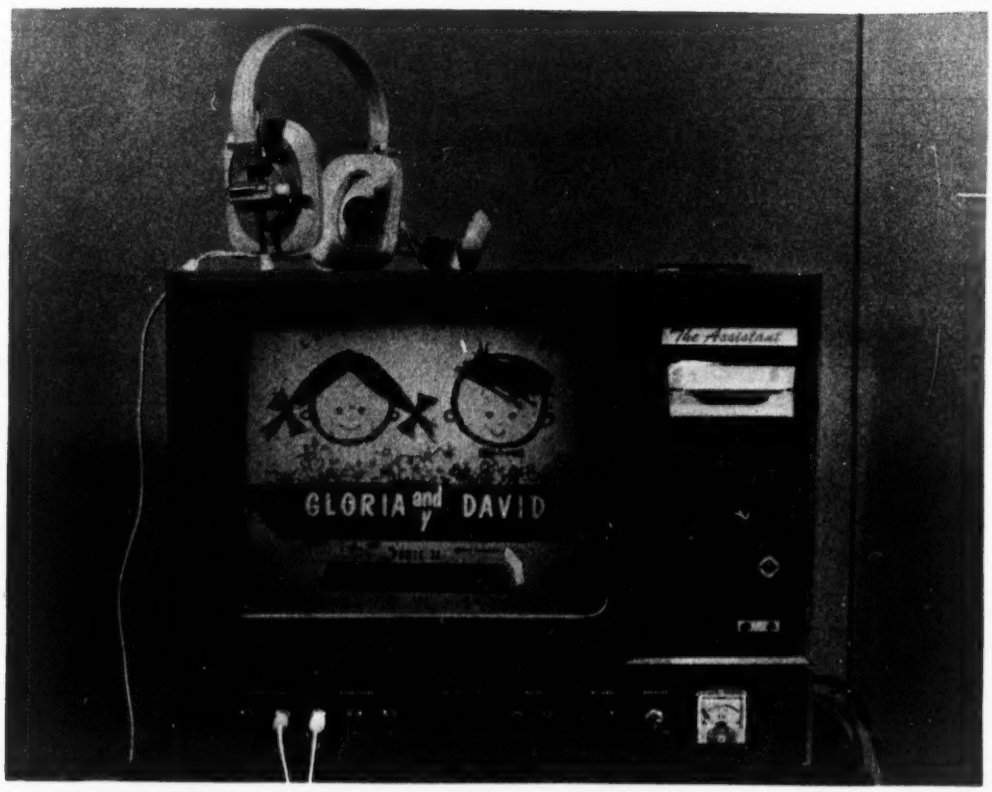
chilb
chien
chiden-2
chiele
chihe
calinging
chldren-2
chinlehen
choldran
chanaden
chichs
ch-2
chidder
chrirden
chden
chicken
chacken
chirdlren
chcaly
chailn
chine
chirhein
cherles

chirden
chlan
chirche
chidern
chiwdern
cheldern
cohan
ck
chrgn
cherld
chden
chlredn

A P P E N D I X D

GLORIA AND DAVID ORAL ENGLISH TEST EQUIPMENT


Name John Johnson
Age 5 Grade Kdg Code
School Jefferson
Native English Dom
Date Oct 8, '70 Test # 2
NOTE
GLORIA and DAVID
c LANGUAGE ARTS, INC., 1958
AUSTIN, TEXAS
ORAL TEST


GLORIA and DAVID

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